THE CONDOR

A Magazine of Western Ornithology

Volume XXV January-February, 1923 Number 1

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THE CONDOR

A Magazine of Western Ornithology

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THE CONDOR

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A STUDY OF THE FLIGHT OF SEA GULLS

By ROBERT C. MILLER*

WITH 11 PHOTOGRAPHS AND 2 DIAGRAMS

NO ONE who has traveled on the ferries which ply across San Francisco Bay can have failed to note the sea gulls which follow constantly in their wake. Hour after hour, day by day, sometimes at night even, they may be seen winging tirelessly after the cumbrous boats, sailing high like paper kites, or sporting in the currents of air about the stern, or scuffling noisily for bits of food thrown overboard by the passengers. In the earliest dawn they are on duty, looking like gray specters in the morning mists, and on moonlit nights they are abroad at least until midnight, flapping along like giant bats in the semi-darkness.

Of the many thousands of people who have watched the gulls on the bay and admired their beauty, probably most have thought of their graceful evolutions only as a part of Nature's artistry. But for the ornithologist, the aesthetic is not the sole nor even the principal interest which attaches to them. Rather does he remark the marvelous powers of flight which enable so large a bird to keep aloft for long periods of time without fatigue, and the rapid coordination which permits it to take advantage of every current of the shifting air, and to maintain its equilibrium under the most adverse circumstances of wind and weather.

On account of their large size, easy flight and relatively slow wing movements, the gulls have long been looked upon as peculiarly favorable subjects for studies of avian aeronautics. However, although our knowledge of their flight is rather extensive, as yet it is far from complete. The data assembled by different observers are frequently not in agreement, and, as Hankin (1913, p. 253) has pointed out, two authorities as competent as Maxim and Headley have published statements diametrically opposed. Such contradictory ideas must in most cases indicate, not that the observations on which they rest are incorrect, but only that they are inadequate; a type of behavior which is observed on one or two occasions may be entirely lacking under other circum-

*The writer of this essay was awarded the Cooper Prize in Ornithology offered at the University of California in 1921-22 for the best study of any subject concerned with birds.—EDITORS.

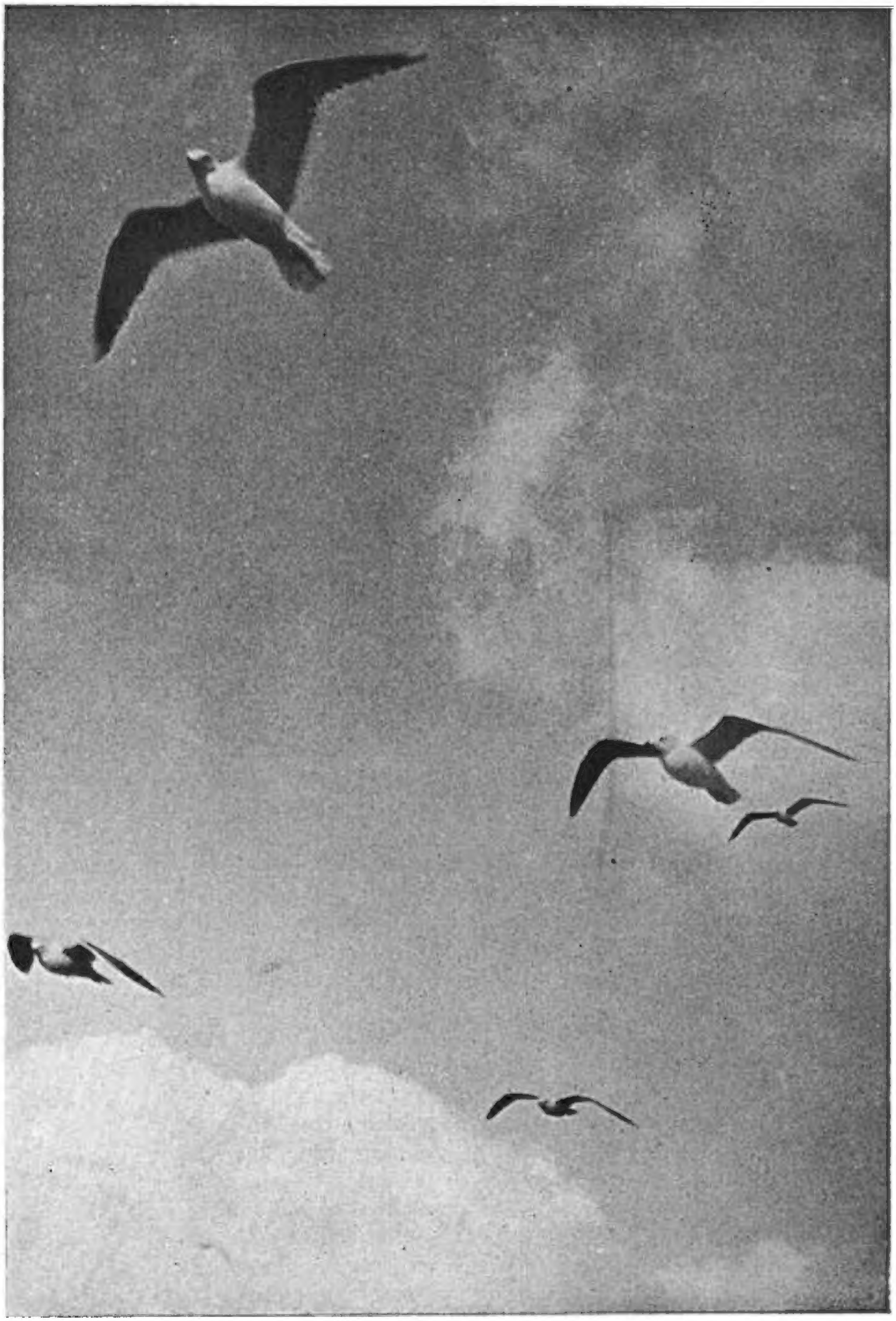

Fig. 1. California Gulls in soaring flight.

Fig. 2. THE BEGINNING OF THE STROKE.

Fig. 3. THE COMPLETION OF THE STROKE.

Fig. 4. WINGS ADVANCED ON THE DOWNSTROKE (LEFT) AND RETIRED ON THE UPSTROKE (RIGHT).

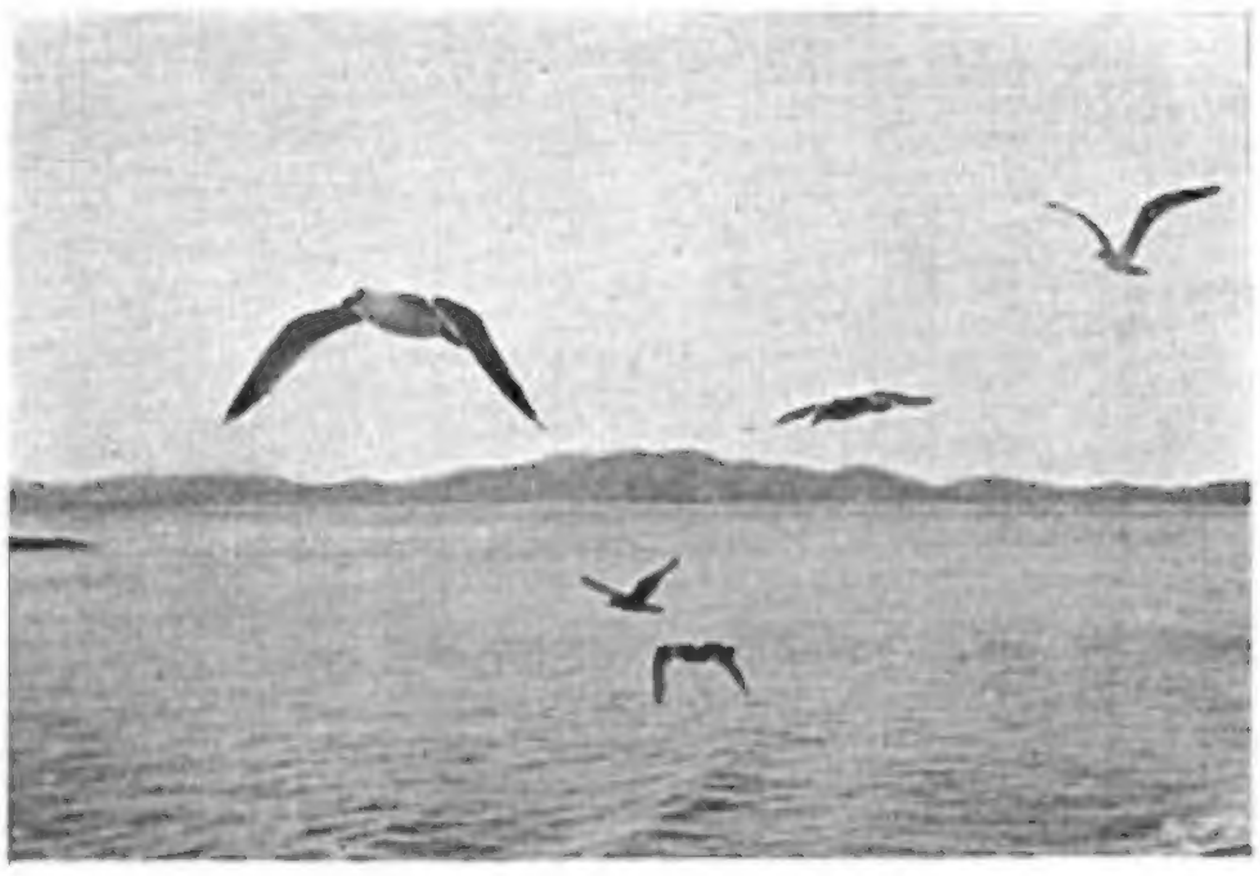

Fig. 5. FIVE DIFFERENT PHASES OF THE STROKE.

stances, and it would be a mistake to assume that modes and methods of flight adapted to some particular set of conditions hold true for all.

The writer became interested in some of these problems by watching the maneuvers of gulls about the ferry boats, and he began some months ago to take notes on their behavior with reference to the speed and direction of the wind and other factors, as he had occasion to cross the bay from time to time. The present paper is based on a series of observations covering a period of about nine months, from July, 1921, to March, 1922, during which time the writer has on occasion laid himself open to suspicion of mental aberration by rushing about on the deck of a ferry boat, gazing seaward and skyward, and jotting down notes in a small black book.

The machinery of flight—the structure of wings and feathers and the nice musculature which controls them—has been dealt with in much detail by Headley (1895 and 1912), Hankin (1913), and others. It is sufficient here to note that the wings are strong, rigid and light, that they are curved to offer the maximum resistance on the downward and the minimum on the upward stroke, and that the great wing feathers, by their shape, contribute materially to the action of the muscles and relieve unnecessary strain. It is generally agreed that the muscles and tendons of the wing are so arranged as to operate automatically, the motion which extends the humerus mechanically extending the other units of the wing, even to spreading the flight feathers. (This view has been objected to by Beetham, 1911, p. 435.) It is important also to note that the tips of the flexible flight feathers bend upwards under the strain of any sudden gust (fig. 7), thus allowing the wind to "slide off" from the under surface of the wing and contributing automatically to the maintenance of equilibrium.

Having in mind these few notes on the mechanics of flight, we may go on to consider the bird in action, which has been the major object of these studies. Nothing appears more leisurely and effortless than the flight of gulls. The exertion by which they keep pace with a steamer seems to be little more than an idle flapping, when indeed they are not soaring on almost motionless wings above the boat. But when we come to study more closely just what is taking place, and particularly when we record photographically certain movements that are too quick for the eye, we discover that more energy is being expended than at first seemed to be the case.

The first point to be noticed is that the stroke of the wings is considerably longer than appears to the eye; indeed, each time the pinions are raised they almost meet above the body, and on the downward beat they approach the perpendicular beneath it. This can partially be seen when a bird passes directly on a level with the eye, but can be fully demonstrated only by photographs which catch the wings at their highest and their lowest points. The full sweep of the wings can be seen by a comparison of figures 2 and 3, which indicate respectively the beginning and the completion of a stroke. This is illustrated a little less perfectly by the two birds in figure 4; and in figure 5, by a happy chance, five different phases of the stroke are represented, although neither the full upward nor the full downward extension of the wings is shown. It will be noted by studying the lowest bird in this figure that, on the down stroke, the wing is sharply flexed at the wrist, the forearm being nearly horizontal.

It should be remarked, however, that while the eye tends to underesti-

mate the length of the stroke, the camera somewhat exaggerates it. The wing does not actually describe an arc of nearly 180 degrees, as might be thought from its extreme upward and downward extensions. It is to be remembered that the body of the bird is not moving on a fixed plane, but undulates with each beat of the wings, rising on the downward stroke and falling a little as the wings are raised. This up and down motion appears from Marey's figures (1895, p. 237) to be about equal to the thickness of the body of the bird. Thus when the wings move from the highest to the lowest position of a beat, their tips describe a shorter arc than if the body were fixed. The undulating motion of the body is usually concealed from the observer for lack of a point of reference, or because it is masked by the greater motion of the wings.

From the fact that the wing stroke is as long as we have described, it follows that the beat must also be more rapid than it gives the impression of being. This is found to be true when we undertake to photograph a gull in action. The seemingly leisurely flapping of the wings can rarely be caught

Fig. 6. RAPID MOVEMENT OF THE WING TIP.

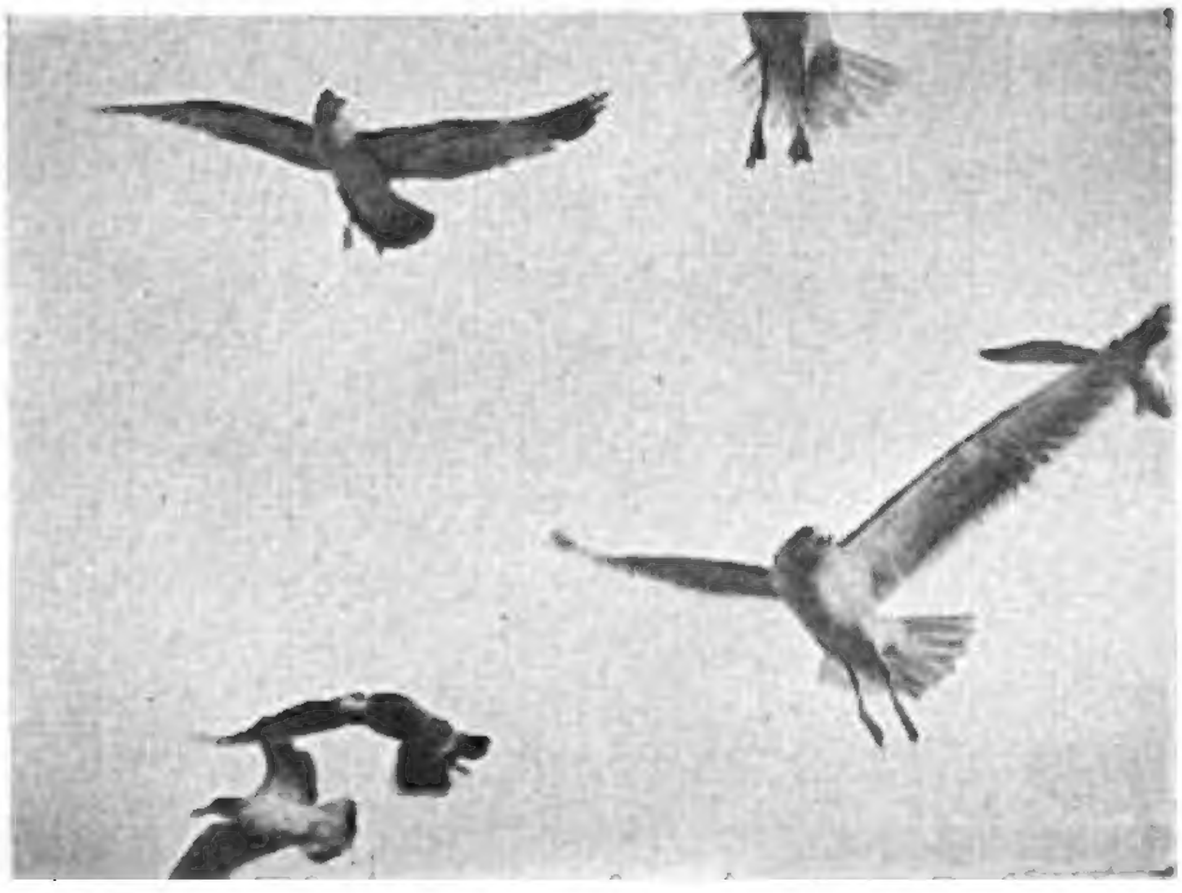

Fig. 7. THE USE OF FEET AND TAIL FOR RETARDING FLIGHT.

by an exposure of less than 1/200 of a second, and often shows movement at even higher speeds than this (fig. 6).

In ordinary flight a gull will average about 120 strokes per minute. This involves a rather slow movement near the shoulder, but one which becomes exceedingly rapid towards the tip of a long wing, as we see in figure 6, and in the case of the lower right-hand bird in figure 7, where the humeri are sharply recorded, but the more rapidly moving tips are blurred.

It is the rapidity of the wing stroke which is the secret of flight, not of gulls alone, but of birds in general. The quick stroke suddenly compresses the resilient air beneath the wing, and this has usually been assumed by theorists to be the means by which the bird is supported; it rides on successive columns of compressed air. Rather, however, should be emphasized the reciprocal of this, that is, that on the downward stroke a momentary vacuum is left above the wing. In other words, the air pressure is removed above but maintained beneath the pinion, so that it is supported theoretically by a force approaching 16 pounds per square inch of surface. Of course, this vacuum is by no means complete and is of very brief duration, but it is obvious that the

lifting power of the air beneath is ample to support a much larger bird than a gull on the same wing area.

The displaced air cannot rush in so quickly in the wake of a large wing as in the wake of a small one. This explains why a gull is able to support itself in the air with only two strokes per second, while a sparrow, which really has a greater wing expanse in proportion to its weight than a gull, must take 13 strokes per second (Marey, 1890, p. 100). A large wing is intrinsically a more efficient instrument of flight than a small wing, without reference to the weight of the bird to be supported.

During the beat of the wings there is a certain forward and backward, as well as up and down, motion, so that the wing tip describes an ellipse or, due to the forward movement of the bird, a series of loops (fig. 8). It is possible even that the trajectory of the wing tip is a sort of figure 8, as Pettigrew (1847, pp. 15ff.) has insisted, and Marey (1890, p. 140) has described for the crow; but the presence of a secondary loop cannot be determined by observation, and seems rather doubtful.

Two phases of the loop described by the wing are to be seen in figure 4. The upper bird shows the wings advanced on the down stroke (position A, fig. 8), while the lower bird has them retired on the up stroke (position B, fig. 8).

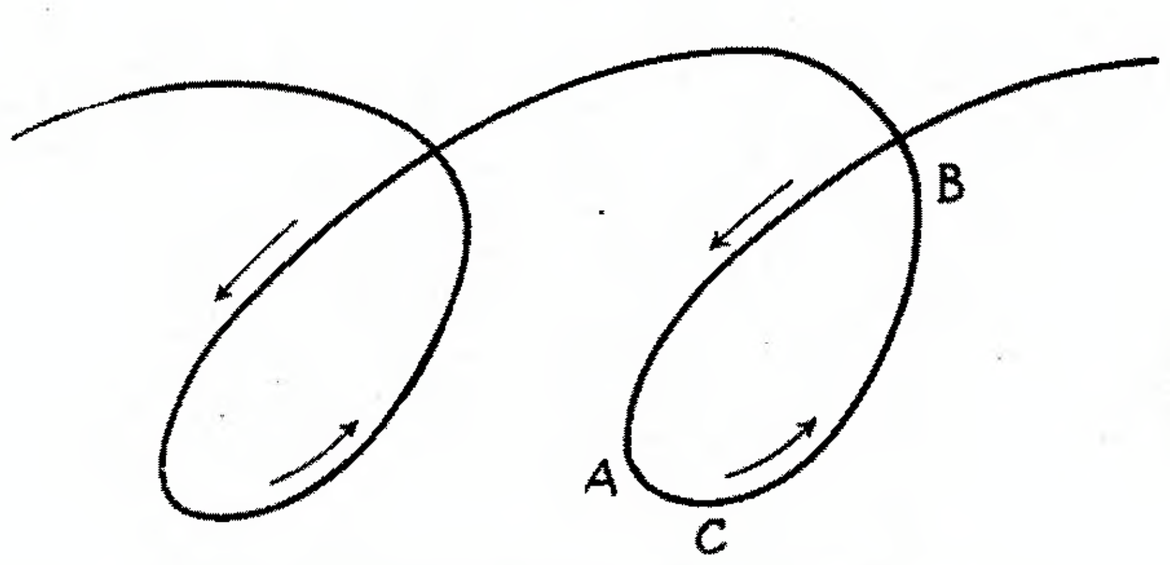

Fig. 8. TRAJECTORY OF THE WING TIP.

Figure 3 shows the wings with the front margins almost vertical, as they would appear at position C, figure 8.

The effect of advancing the wings farther than normal is to rotate the front margins upward, so that the ventral surface is directed anteriorly, thus retarding forward flight. This is well shown in figure 9. These gulls were hovering with almost no forward motion, picking up bits of food from the water without alighting. The advanced wings, depressed tail and lowered feet indicate the efforts to check forward flight.

The feet are ordinarily held close against the under tail coverts in flight (figs. 2, 4, and 6), but may be lowered and even the webs spread out to act as "brakes" in retarding flight. The coordinated use of feet and tail for this purpose is admirably shown in figure 7, especially in the bird only partly included at the top of the photograph.

In rising from the water a further use of the feet becomes evident (fig. 10). A certain forward momentum is necessary before the bird can rise, and a gull may often be seen contributing to the efforts of its wings by kicking vigorously as it leaves the water.

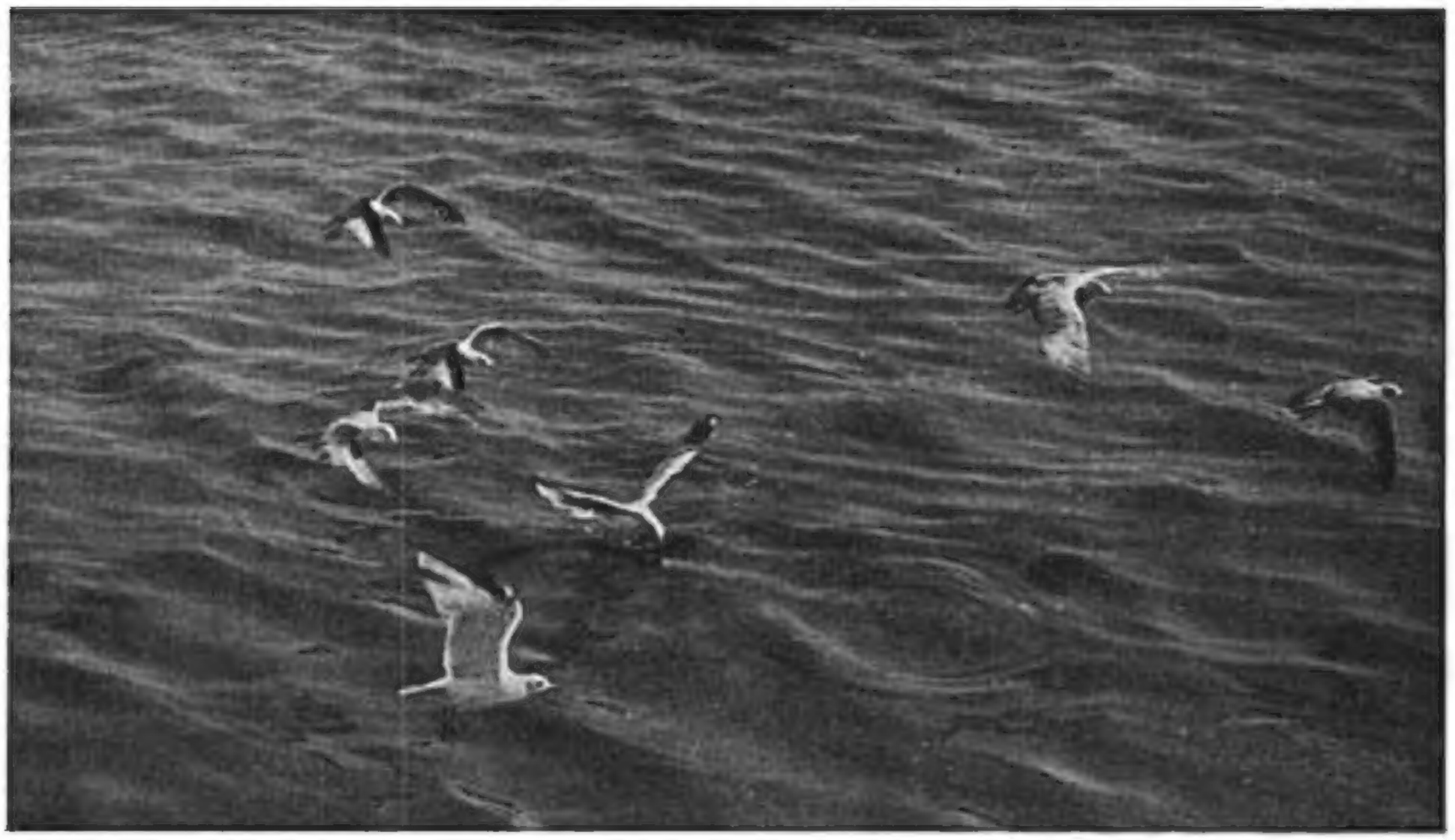

Fig. 9. HOVERING OVER THE WATER WITH ALMOST NO FORWARD MOVEMENT. NOTE ADVANCED POSITION OF THE WINGS.

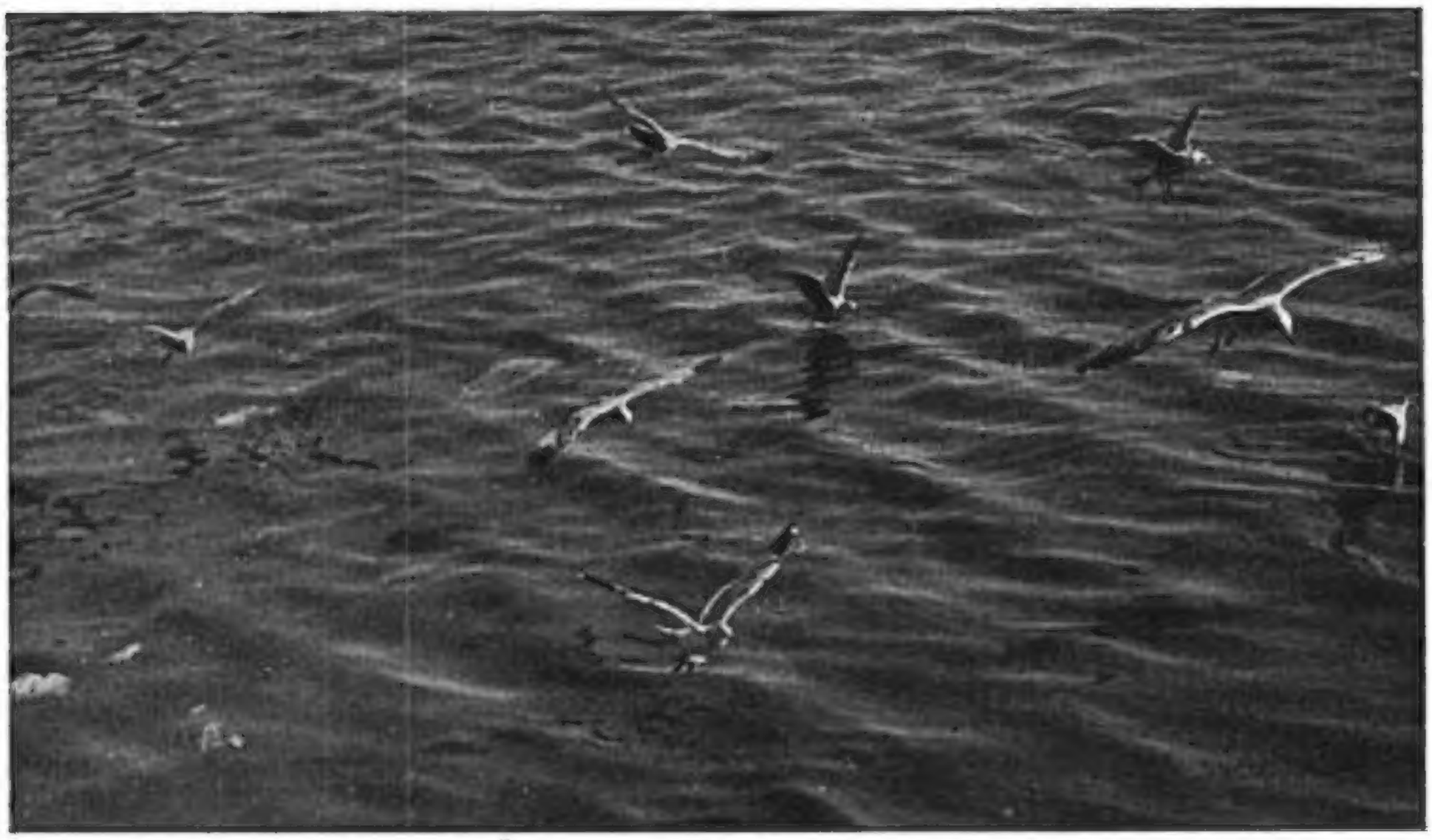

Fig. 10. RISING FROM THE WATER. OBSERVE POSITIONS OF FEET.

However complicated may be the process of flapping flight, so long as a bird's wings are in motion we are able to understand at least in a measure how it keeps aloft; but what are we to say when we witness a large bird sailing for great distances on almost motionless pinions without loss of altitude, or even steadily gaining altitude with no more effort than the occasional twitch of a wing in making an adjustment to some sudden gust? This is the phenomenon referred to as *soaring flight*, which has ever been a source of wonderment to layman and scientist alike.

While the gulls are not masters of this type of aerial navigation to quite the same extent as the larger hawks and vultures, nevertheless they often give remarkable exhibitions of their powers along this line. It is a common sight to observe a gull travel several miles at a speed of from 12 to 18 knots per hour without a single flap of the wings; and I think it probable that much higher speeds than this would be recorded if there were faster steamers on the bay to serve as a basis of comparison.

Various theories have been proposed from time to time to account for soaring flight, some of which are plausible, while others are rather obviously at variance with the facts.

It has been commonly urged that a soaring bird has gotten into an upward current of air, in which it has only to maintain itself by proper adjustments, retaining its height or ascending according to the force of the rising current and the angle of its wings. In other words, soaring flight is simply a downward glide in an ascending column of air.

It has been objected to this that birds are often seen to soar in the absence of any ascending current, so far as can be detected, and even that they studiously avoid such currents (Hankin, 1913, pp. 19, 63, etc.).

Lilienthal (1911, p. 78) advanced the somewhat surprising theory that the general trend of the wind everywhere is upward at an angle of 3 to 4 degrees to the horizon. The logical difficulties of such a theory are rather obvious, as at this rate we should shortly be living in a vacuum; and Headley (1895, p. 238) has comfortingly demonstrated that the direction of a wind over a level plain is horizontal, although a very slight obstruction may cause a pronounced upward draught.

Opponents of the ascending current theory have proposed numerous other, and often less adequate, hypotheses to account for soaring flight.

Some have postulated a wave-like or pulse-like motion of the air; according to this theory, the bird gains momentum by gliding with the wind in the interim between gusts, and gains altitude by turning to face each freshening breeze (Headley, 1895, p. 246). Others have maintained that small eddies or whirlpools in the air are taken advantage of, the bird meeting them and gaining energy by extinguishing their motion (Hankin, 1913, p. 62). A few have even urged that soaring flight is an illusion, the wings really being in motion, slight, but sufficient to keep the bird aloft. This rather strained hypothesis has probably been suggested by the occasional balancing movements which soaring birds are seen to make.

In the *American Naturalist* for 1886 we find a very remarkable theory advanced by I. Lancaster, which, stated briefly, is this: A properly constructed glider will move in a horizontal direction much more rapidly than it descends vertically. The more the wings are inclined, the greater becomes the horizontal motion relative to the vertical. If the wings are sufficiently inclined,

as he assumes to be the case in the soaring bird, theoretically (?) the vertical motion should entirely cease, the pull of gravity causing only horizontal motion. This seems to be a round-about way of stating that a soaring bird is really held up by the force of gravity!

A curious consequence of this theory was that Professor Hendricks (1886) thought it necessary to reply in a subsequent issue of the same journal with several pages of complicated mathematical disprcof, demonstrating by various formulae that the effect of gravity would actually be, not to support a soaring bird, but rather to bring it to earth!

A more recent investigator (Hankin, 1913) has discarded all theories having a basis in any known physical laws, and insists, on the grounds, be it said, of much excellent observation, that soaring flight must be referred to some entirely unknown quality of the atmosphere, which he terms "soarability". Of this he postulates two kinds, "sun soarability" and "wind soarability". Neither of these depends upon ascending currents, but rather upon some mysterious transfer of sun (pp. 98, 105, 206) or wind (pp. 278 ff.) "energy" to the soaring bird. Such a theory can hardly be looked upon as doing aught but removing the phenomenon from the realm of possible explanation to that of pure mystery.

It seems at present that the earliest and simplest of these theories, that of ascending currents, is the most plausible. So far as the writer has been able to observe, it is entirely adequate to explain the soaring of gulls. The following extracts from my notes will indicate the basis of this statement:

August 17, 2:20 P. M.—Clear, bright day; stiff west wind. Several gulls observed sporting in current of air deflected upward by ferry slip at Oakland Mole. Would glide west some yards on motionless wings, gradually losing altitude, then rotate wings so as to be caught by breeze and swept back into ascending current, in which they would speedily rise with no visible effort and repeat the performance. This continued about five minutes, until birds were disturbed by coming of a boat.

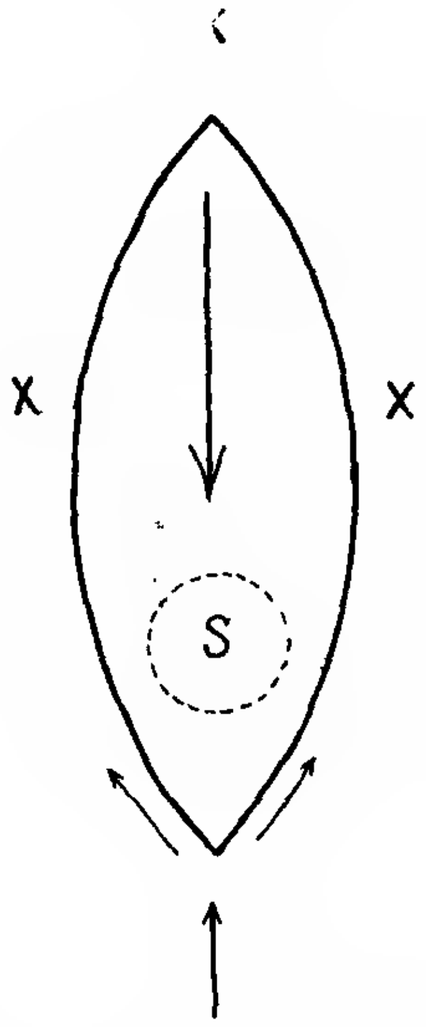

Fig. 11. DIAGRAM OF POSITIONS OF GULLS ABOUT A FERRY BOAT MOVING AGAINST THE WIND.

August 13, 5:30 P. M.—Stiff west wind; several gulls soaring a few yards above and slightly to the leeward of the highest point on Goat Island.

July 29, 10:50 A. M.—Ferry travelling against stiff west wind. Gulls observed at points S, XX, and Y (fig. 11). Those at XX flapped continually. Those at Y took a zig-zag course, alternately flapping and sailing; they would gain momentum by flapping vigorously while in the shelter of the stern, then dive to one side into the wind and sail a moment, quickly losing momentum but gaining altitude. Then, from this increased height, they would dive back into the shelter of the stern, usually adding to their momentum by flapping, and continue across into the wind on the other side, where they would again gain altitude with the loss of momentum. This was repeated indefinitely, like a sort of play.

Several gulls were soaring without effort just above the forward pilot-house. There was scarcely a visible wing movement so long as they remained in the area S (upward draught from bow), but they had to resort to flapping whenever they drifted to one side or the other of this area. (On several occasions a gull has been observed very distinctly to *fall off* this upward current, and drop suddenly somewhat laterally for 10 or 15 feet before righting itself.)

Fig. 12. TYPICAL SOARING POSITIONS.

Fig. 13. TACKING BY BENDING WINGS AT HUMERI.

July 30, 11:40 A. M.—Ferry going west against light breeze. Three gulls soared smoothly just above forward pilot-house, balancing by occasional flick of wing tips.

7:30 P. M.—Ferry going east, with light wind from stern. Several gulls followed, flapping, at a distance. No soaring was attempted.

August 1, 3:20 P. M.—Ferry going west against very stiff wind. Very little soaring attempted, and only for a few moments at a time. One bird alternately flapping and sailing was caught by a sudden gust, almost capsized, and turned completely around. In two or three seconds it righted and began following boat again.

November 6, 2:30 P. M.—Ferry going west; fair wind from starboard. A number of gulls soared over windward side, moving sidewise and forward, with left wing advanced (figs. 12 and 13); that is, the birds were moving with the boat, while facing a point half way between the course of the boat and the direction of the wind.

3:40 P. M.—Ferry going east; wind from port. Birds soared as before, on windward side, but with right wing advanced, as would be expected from reversed direction of flight.

Their method of soaring was carefully observed. They would rise in the upward current at windward side until at a considerable height, then drift forward and laterally, to right or left, with gradual loss of altitude, until they circled back into the ascending current and rose again. Thus their flight was a series of circlings in and out of the ascending column of air, with a steady forward glide to keep pace with the boat. The wings were held nearly motionless, and slightly flexed (fig. 1) to derive the maximum lifting power of the wind.

The chronological order of these excerpts has been intentionally disturbed, in order that they may furnish illustrations respectively of the following points:

1. That gulls take advantage of the air currents deflected upward from buildings, steamers, hill-sides, etc., to indulge in soaring flight.

2. That they have not been observed to soar in the absence of such currents.

3. That the most favorable conditions for soaring about a steamer occur with a moderately brisk wind from the bow, or either side.

4. That a very stiff wind is not favorable to soaring.

5. That the "soarable" position varies with the direction and speed of the wind, and the nature of the object causing the upward draught. Thus, in a moderate wind from starboard, the gulls soared over the windward side of the boat, while in a stiff breeze over the crest of Goat Island, they soared to the leeward of the island. It has been observed also that, with increasing briskness of the wind about the ferry boats, the soarable area tends to move more and more to the leeward. This may explain the confusion which has existed upon the point (Hankin, 1913, p. 253), some observers reporting that gulls soar on the windward, others that they soar on the leeward side of steamers.

In conclusion it should be stated that these data are not intended to furnish an adequate explanation of soaring flight in general, but only of that of the gulls as I have observed it. It is entirely possible that, in the magnificent soaring of eagles and vultures, particularly as seen in the tropics, other factors may enter. Conditions at a height of one or two miles must be very different from what they are at the relatively small heights to which gulls attain.

But if, as some maintain, birds are able to soar in the absence of any *noticeable* upward movement of the air, it is yet entirely possible that such currents may be in operation, due to convection or other causes of atmospheric disturbance with which aeronauts are unpleasantly familiar. The wing of a

bird, particularly of a large bird, is, as we have shown above, an extremely efficient instrument, capable of immediate adjustment to derive the maximum advantage from every movement of the air, so that a very slight upward draught may yield it considerable lift.

In any case, it seems wiser to go as far as we can with explanations in terms of known physical laws, rather than to postulate forces of which we know nothing, and which, if they exist, we have little chance of discovering.

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University of California, July 1, 1922.

A NATIONAL BIRD DAY

By ALTHEA R. SHERMAN*

IN *Iowa Conservation* for July-September, 1921, we find a set of resolutions, adopted at the Annual Summer Convention of the Iowa Conservation Association. Among the resolutions, is one that reads as follows: "That we are in sympathy with the movement to make April 3, John Burroughs' birthday, a National Bird Day." Some of us may not be in entire sympathy with such a movement, therefore the present seems the time to voice our objections, and not to say them with flowers.

Those of us, having three hundred and sixty-five days in every year that are more or less bird days, certainly can not object to others having one day

*With the permission of the author this article is reprinted from the **Iowa Conservation,** April-June, 1922. It is so good, and touches on so many questions of the day so directly, that we hereby break our rule not to give space in **The Condor** to matter already printed.—EDITORS.

each year to devote to the birds. We would urge rather that they, too, enjoy the birds daily.

Birds are not the only objects of interest and beauty about us, and the student of each subject, whether plant or animal, organic or inorganic, may rightfully claim that a day be set apart for his chosen study. One man delights in the study of birds, while another man may be equally devoted to that of butterflies; another's interests are in ants, still another's are in bees; wasps and spiders both have their devotees; each family of aphids may have its research students. One man may specialize in dragon-flies, or crickets, or grasshoppers, and yet another man in water-striders or caddis-worms; the plankton of our streams also has its specialist. Surely we can not be selfish in this matter of national days, but must plan that the specialists in botany and entomology each has a day set aside for his pet study. These would take somewhat more than two hundred of our days, leaving a paltry one hundred and fifty days for all the other important and delightful studies in nature.

These may not leave enough days for all rightful claimants, since geologists, paleontologists, meteorologists, mammalogists, malacologists, ichthyologist, herpetologists, helminthologists, parasitologists, and a host of others are entitled to numerous days for the objects of their special studies. Of the mammals of the sea, of the earth, and of the air, only the woodchuck has his appointed day. While deliberating on setting apart special days for all interesting objects in nature no one should forget the soulful arguments of the Missouri legislator, when he pled for making ground-hog day a legal holiday, but failed in his attempt. Taking warning from his failure, would it not be well at the very start to plan to have all these days made legal holidays?

If the birds have their national day so should the bats have theirs. They are our only mammals that on the wing might be mistaken for birds. Their habits are quite as interesting, though harder to study. And the lowly worm also must be exalted, if for no other reason than that it constantly dwells in such close companionship with us. Who can tell how many species of worms he entertains within his corporeal frame at this very moment? Helminthologists say that of various species of nematodes alone inhabiting the bodies of mankind, "practically a half hundred have been enumerated"; that among such nematodes are the guinea-worm, the hookworm, and the several species of filaria. Meanwhile, parasitologists, busy in their research work, pause an instant to tell us that they have found in man "many species" of intestinal protozoa, and they assure us that many more are likely to be discovered. Clearly somewhere we must squeeze in a day for these protozoa, and our bodily self-respect demands another day for the worms.

If we can take our eyes from the birds long enough to look about a little we may see thousands of things in nature, which have thousands of learned men studying them in minute detail. We may note that in the year 1910 there were published forty books and articles on ants, and that 1317 was the number of pages contained in them. When we are ready to establish a national ant day, we have one or more of the world's greatest myrmecologists whose birthdays may be celebrated. There are in America upward of six hundred self-confessed botanists, and fifty-five others have died within the past twenty years. Sixty-three per cent of the living are teaching, most of them in our colleges and universities; the greater part of the remainder are occupied with investigations in botanical gardens and experiment stations. According to

Cattell's Directory, ninety-one of these botanists have been starred, which means that they are ranked among the first thousand of America's most eminent scientists. Two-thirds of these eminent men are teachers. They are opening the eyes of people to the wonders of plant life, not once or twice a year, but daily throughout the college year. As it is in botany, so it is in entomology; hundreds of research entomologists are bending their best efforts to the intensive study of man's worst foes and teaching him how successfully to combat these enemies.

Certainly we must consider him an exceedingly mean and narrow-minded man, who would advocate a national day for birds, while refusing to urge with equal vigor that we observe national days for the whales and manatees, for orchids and slime molds, for lady-bugs, lizards, and tree-toads. If then every one is agreed that along with the three-hundredfold other national days for nature study objects there shall be one for birds, the next step will be to select the day. Since the ground-hog is the only creature that already has a day consecrated to it, our choice is almost unlimited. The selection of a day suitable for all parts of our country appears no easy task, since a day desirable for Porto Rico might be exceedingly untimely for Maine, and the same might be true of Arizona and Alaska.

In northeastern Iowa my daily records, for a series of years, show that on April 3 the average number of bird species seen has been eleven, and the average morning temperature has been 35 degrees. Additional comments on the weather have included such items as these, "ground frozen hard," "howling snow storm", winds that were "sharp", "keen", "searching", "a poor bird day". Only on one day are there indications that the weather was pleasant for enjoyment out of doors. However, personal testimony is not necessary. For nearly forty years, beginning with Professor Wells W. Cooke's organized investigations of bird migration in the Mississippi valley, and later similar investigations covering our entire country, conducted by the Bureau of Biological Survey, have given us a pretty clear knowledge of the northward movements of the birds in spring. Of the seventy species and subspecies of warblers occurring in the United States only, a scant one-fourth of them have been observed north of our southern borders before April 3. By that date the first small wavelet of warbler migrations begins to break on our southern shores. Some of the thrushes begin to arrive in Louisiana and Florida, to join their "hermit" cousins that have spent the winter in our southern states, and with them there comes to our extreme southland the first of many species, among them the first of several species of the small flycatchers, several of the vireo species, three species of the orioles, and the nighthawks, while very soon after this date these species are joined by the bobolink, the indigo bunting, the rose-breasted grosbeak and the cuckoos. All of these arrivals pertain to our extreme southern borders. From a month to six weeks must elapse before a half of our population can greet these returning friends.

The most weighty argument for the establishment of a national bird day seems to be that it would afford a special time for calling the attention of school children to the birds. For such purpose, in nearly one-half of the United States, the third day of April is but a trifle better than the third day of January, February, or March. If the genuine bird student could have but a single

day in the year to spend with the birds can there be any doubt that he would not choose some day in May? Then why should we select the third day of April for a national bird day, except because of its proximity to the first day of April? That pure fountain of information, the almanac, gives us no special folly for April 2. Yet is there any good reason why the first three days of April might not be devoted to a high carnival of folly, wherein we could work foolishness out of our systems and be ready for serious business and common sense during the remainder of the year?

Glancing once more at the resolution under consideration we may note that it reads "April 3, John Burroughs' birthday." Why choose a most unseasonable day because it was John Burroughs's birthday or any one's birthday? Are not the birds of themselves sufficient incentive? Yet if we *must* have a birthday, why not select that of some one of the hundred men, who each has done for the birds a hundred times as much as did John Burroughs? Undoubtedly those of them now living would strongly object to such vulgar publicity, and it is to be hoped that innate modesty in John Burroughs would have forbidden such a movement had he been alive. It certainly would have done so had he possessed a true estimate of his contributions to ornithology, when compared with those of our master workers in that science. If we are not anxious to stultify ourselves in the eyes of other nations as well as in the eyes of generations yet to come, caution should be exercised lest "a national bird day" becomes a byword, a subject for ridicule along with our groundhog day.

It may be that the ambition of John Burroughs at the beginning of his career was to become a successful literary writer, the producer of literature in its best form. If so, his success must have exceeded the most ambitious dreams of youth. So great was the mastery of his art that beneath the magic of his pen the charm and interest of any subject were most delightfully revealed. Had he chosen to discourse on such homely themes as those of the hairpin or toothpick instead of nature, his readers would have been equally well pleased. It seems a pity that he never told the history of a hairpin from the time it left its native bed of iron ore in the Mesaba Range until it reached my lady's boudoir, together with the manifold uses she has made of it from pinning in place her golden locks to the mending of a harness, that broke when she was driving on an unfrequented country road. Had he done so there might have been a movement for the national establishment of a Burroughs hairpin day instead of a Burroughs bird day.

It ought to be clearly evident to all readers that were there no birds, the eminence of John Burroughs as a writer would not have been diminished in the least, for he wrote most entertainingly on many subjects. Some of his finest things were said about plant life, about trees, shrubs and flowers, yet there is no wild scramble among our six hundred scientific botanists, which include the ninety-one men eminent in science, to push John Burroughs to the extreme front and to establish a Burroughs blossom day; he wrote about ants, bees, wasps, and other insects, yet there is no crowding forward of our six hundred scientific entomologists, which include some of the foremost scientists of the entire world, demanding a national Burroughs bug day; he wrote frequently concerning geology yet our numerous geologists are silent about establishing a Burroughs boulder day. Well might they claim such a day, since

by him a rock was always called a rock, and a stone was called a stone. He would not have tolerated the statement that "a boy threw a rock through the window of a rock house" though recently there is a common tendency toward such loose language; he wrote about various mammals, about the skunk, weasel, rabbit, squirrel, chipmunk, dog, cat, cow, horse and sheep, yet mammalogists do not clamor for a Burroughs buck day; he wrote most charmingly about journeys to Alaska, Hawaii, the Grand Canyon of the Colorado, and the Yellowstone National Park, also about his friends, John Muir and Theodore Roosevelt; he wrote most kindly and quite often about birds. A very, very few of these things about birds were new to science, such as the flight song of the ovenbird, and the first accounts of the nesting of the black-throated blue warbler and of the mourning warbler. He was a shrewd man: he did not call himself an ornithologist, and the genuine ornithologists have never shown any inclination to crowd the title upon him.

To ornithologists, professional and amateur, the world owes most of its knowledge of American birds. They have discovered the birds, named them, described them and their habits. They have given most generously of their time and labor, and sometimes have given their lives in the cause of the birds. They have organized ornithological societies, which support magazines in which have been published thousands of articles on birds all of which have been free gifts from the authors. To one of these societies, the American Ornithologists' Union, belongs the credit of starting the movement for bird protection, and another society, the National Association of Audubon Societies, has carried forward the work, until there is hope that the species of birds now remaining in America will be saved from extinction. This great work has been accomplished by the devotion and sacrifices of a comparatively small number of our people. The funds for bird protection have been given by a few thousand individuals in sums ranging from fifty cents to $900 annually. In all this work, so far as I can learn, John Burroughs bore no part whatsoever. In the published lists of donors not a single dollar appears to his credit. Barring an article, entitled "A Bewildered Phoebe" which appeared in Bird-Lore, Vol. III, pp. 85-87, he does not appear to have *given* a single line to bird literature. In short, what he did for the birds was to sell at a goodly price the things he had to say about them. In eighty-eight numbers of the *Auk*, covering twenty-two years, his name was mentioned in three places. It is believed that there was a fourth mention, but at the time of this writing that one can not be found.

Most truthfully has it been said that his most important contribution to public welfare was in opening the eyes of others to the beauty to be found in nature. With equal truth it might have been added, that the vision of eyes, that remained closed for twenty,thirty, or forty years in spite of the wonders, the interests, and the beauties of nature everywhere about us, can scarcely be worth the printer's ink that served as the carrying medium for their eye-opener.

No one can tell us who were the *original starters* of this movement for which our sympathy has been asked. Very likely they belonged to the class just mentioned. If so, their position is similar to the somewhat analagous though suppositional case of a community that suffered from an inflammation of the eyes until they were unable to see. The malady was one that easily

yielded to treatment, and the best of physicians were within call. But they perversely refused to seek aid until there came along a quack selling eye-salve. In this all of them invested, used it, and soon could see. Their appreciation was such, that totally unmindful of the true benefactors of our race, they began a clamor for the establishment of a national monument for their quack.

National, via McGregor, Iowa.

FIFTEEN ARIZONA VERDINS' NESTS

By FLORENCE MERRIAM BAILEY

THE SMALL gray Verdins (*Auriparus flaviceps*) were more often seen than the large spotted-breasted Cactus Wrens in the mesquite near our winter camp at the foot of the Santa Rita Mountains, perhaps partly because the Wrens were very shy and the Verdins not at all so, for in the territory examined the Verdins' nests were not nearly so abundant as those of the Wrens.* On the fifty-three acre patch where twenty-seven Cactus Wrens' nests in good repair were listed, only three good Verdins' nests were found. On two sides of the fifty-three acres, however, twelve Verdins' nests were listed within a short distance and a little farther away a number of others were noted in passing.

Local conditions of tree and shrub growth may have been one of the determining factors explaining the presence or absence of the nests. For of the fifteen examined all but one, which was in a catsclaw (the locally favorite site with the Wren), were in zizyphus bushes, and nearly all of these bushes stood under good-sized, more or less isolated mesquite trees. Whether this selection of nesting site was on the protective principle that two thorn trees are better than one, or whether the shading and extra, thorn-supplying mesquite, which seemed to me such a happy addition, was quite irrelevant to the Verdin, an easily accessible long-thorned zizyphus being its only requirement, must remain a matter for speculation. Suffice it to say, the globular nest, while smaller than that of the Cactus Wren, is large enough to be fairly conspicuous, readily discerned by eyes much less keen than those of marauding hawk or owl, and every extra safeguard would seem that much to the good.

In location, the nests examined averaged decidedly lower than those of the Cactus Wrens, varying from 4 feet, 3 inches, to 7 feet above the ground, seven of these being from 4¼ to 4½ feet; one, 4 feet, 8 inches; and two, 5 feet, 3 inches; while only two were 6 feet, and three, 6 feet, 9 inches, to 7 feet; none being over 7 feet. In the case of the Cactus Wrens, 24 out of 64 were between 7 and 9 feet from the ground.

The Verdins nest, while roofed and having a covered entrance like that of the Cactus Wren, is approximately spherical instead of retort shaped, and its entrance is overhanging, slanting down from the side instead of extending up at an angle from the nest chamber. While much shorter than that of the

*See "Cactus Wrens' Nests in Southern Arizona", **Condor**, XXIV, September, 1922, pp. 163-168.

Cactus Wren, the entrance is quite long enough to hide the doorway and cloak the comings and goings of the little Verdin. The largest nest examined was 10 inches long by 6 high, and another large one measured 9 by 7 inches and was 5 inches high.

In 9 of the 15 nests in which the position of the entrance was noted, 3 were on the north side; 4, on the northwest, west, or north-by-west; 1, southeast, and 1, southwest. The discrepancy between these directions and those faced by the Cactus Wrens' nests may possibly be explained by the fact that the Wrens' nests were largely hidden in protecting balls of mistletoe while those of the Verdins were unprotected and might be more easily affected by the severe winds from the Gulf of California on the southwest.

The nests were mainly the inconspicuous greenish gray of the zizyphus, but one seen on the Range Reserve about two miles from camp was, to quote from my notes, "a dishevelled looking mass, largely straw-color, of dead mesquite leaves, leaf stems, and thorny twigs, well supported with mesquite twigs." Two disused nests brought to camp and examined carefully showed a three-fold structure made with great skill. The outside shell of the handsome ball was made of thorny zizyphus, or zizyphus and catsclaw twiglets; while the inner nest was made of mesquite or catsclaw leaves, leaf stems, and sometimes catkin stems, remarkably felted throughout with spider web; the nest chamber in turn being lined thickly with feathers, in one case mainly quail but some chicken, making in all a large handful.

Of 10 nests showing signs of occupation, 9 were found to contain roosting birds, the birds being flushed at intervals from 4:28 P. M. until after sunset, on various dates, from December 9, 1920, to March 13, 1921. Two birds seen going to their nests went earlier than the Cactus Wrens, half an hour or more before sunset, which considering the fact that their nests are largely under trees rather than on top of them can be done with less danger from prowling Sharp-shinned Hawks and other too observant neighbors.

It should be said that what little work was done on the Verdins' nests was quite incidental to that done on the Cactus Wrens' nests, and that many of the interesting questions which suggest themselves now must be left for others to answer.

Washington, D. C., October 28, 1922.

MIGRATIONS OF THE GOLDEN AND BLACK-BELLIED PLOVERS IN ALBERTA

By WILLIAM ROWAN

CURRENT literature on the subject of the migrations of the Golden Plover (*Charadrius dominicus dominicus*) must surely be modified when the ornithology of this province has received a little more of the attention that it deserves. During three years observations on the same spot on one of the larger lakes in the vicinity of Edmonton, I have been struck with the regular southward migration of this species in the fall. The birds generally asso-

ciate with the Black-bellied Plover (*Squatarola squatarola*), but they are always in the minority. The southward movement appears to be at its height about the middle of September when between thirty and forty birds have been seen in an afternoon. All of these, however, seem to be juvenals, although this point requires verification.

The moults of the two species are similar, but apparently those of the Black-bellied are somewhat later, both in the fall and in the spring. Up to the middle of September, birds of this species in breeding plumage are common, but they are always very wild and difficult of approach. They are of course adults. During the first week no winter plumaged birds have yet been noted. From the second week they come into evidence and get more and more abundant thence onwards. An exceptional bird and the latest in breeding dress I have taken on this spot was collected in the third week of the month, with the first feathers of the winter plumage just appearing. I do not believe that this individual was a late moulter but rather a late migrant. As a rule the specimens in this garb disappear in a very short time, so short that the possibility of their having moulted is eliminated. They have in fact proceeded south.

My belief is that adults here in winter plumage are very rare. Of a long series taken during three years every one seems to be immature. The same remark applies to the Golden Plover. But an adult of this latter species in breeding dress I have not yet secured in September. Unfortunately I have not had the opportunity of collecting here in August, but I have been informed by one or two reliable observers on other lakes that they have seen adult Golden Plovers going south early in that month. Presumably, then, they show the same trait as their relatives, the adults migrating before the juvenals. But the Goldens migrate earlier than the Greys for which reason no adults have been seen here in September. My latest Golden Plover record is for the 23rd of September, just when the Black-bellied, which stay on to the end of October, were present in their largest numbers.

With regard to their spring movements, apparently both species go north about the same time; but again the Greys are not as advanced in their moult as the Goldens. The latter are generally in their full dress, while the former are still changing, a large percentage of them at all events. The height of the migration seems to be early in the latter half of May.

My latest record for northward bound Golden Plover is May 29, when two birds only were seen. The Black-bellied Plover I have never seen so late in this province, although I have a later record for an isolated specimen on Lake Winnipeg.

This year has been an exceptional Golden Plover year. At the place referred to above, somewhere over a thousand birds were seen on the 20th of May alone, in moving flocks varying in number from thirty individuals to several hundreds. This was evidently not unique; for about the same time I got a report from quite another part of the province that this species was unusually abundant, while from yet another quarter I got a very good description of the bird in a letter with the request that I name it for the enquirer, a careful bird observer. Her comment was that she had *never seen the species before*, but that it was, at the time of writing, present on the ploughed fields in enormous numbers. To convince myself, I made a careful sketch of a typi-

cal specimen and returned it to the source of enquiry, later to hear that it was the bird in question without doubt. It seems difficult to account for the unprecedented numbers, unless it is the effect of the general prohibition of spring shooting on the continent during the last few years.

University of Alberta, Edmonton, Canada, October 24, 1922.

THOUGHTS ON ENGLISH NAMES FOR BIRDS IN THE A. O. U. CHECK-LIST

By W. L. McATEE

PAPERS presented at the 1921 meeting of the American Ornithologists' Union and others that have appeared in print at intervals have contained suggestions and criticisms relative to the English names of birds appearing in the Check-List. It seems to the writer that these arguments have lacked cogency and force to a great extent because the object to be accomplished has never been clearly defined. Bluntly, what is the object of incorporating a set of English bird names in the Check-List? That question must be clearly answered before an intelligent selection of names can be made.

Some writers evidently lean toward the view that the non-technical names of the Check-List should reflect popular usage. Again, in this connection, a serious question immediately arises—What is popular usage? Check-List territory is a large one, and however much we may dislike the idea, it is strongly sectionalized. One need only recall popular designations of a few of these sections as The South, Way Down East, and the Corn Belt, to realize that even among the English speaking part of our population, grouping is evident and that it undoubtedly strongly influences usage in bird-names. In addition we have the Mexican Border, we have localities chiefly populated by Indians, communities strongly Bohemian, Swedish, German, or Russian; we have Louisiana, home of the Creoles, and French Canada; in all, sectionalization so pronounced as to make the question, What is popular usage?, an unanswerable one. Usage in bird names is not only local, but often changeable, even whimsical. It cannot be accurately reflected in a list of bird names—one name to the species—such as we incorporate in the Check-List. Rather, a catalogue or dictionary of names would be required.

Only a comprehensive knowledge of local bird names also, will serve for another purpose, namely legal use, for which some might think an authoritative standard list sufficient. No, when in court, the terms used in local legislation must be used, and to hardly a less degree the colloquial nomenclature of the people concerned. Local bird names have been made official by being incorporated into laws. Consider the following, for instance, from a Louisiana bird-protection act: grosbec, poule d'eau, chorook and papabotte; and these from a Florida law: joeree, pond bird, red warbler, and plume bird. In trials, therefore, to which the ornithologist may be called, he must be familiar with bird names that never have received recognition by the Check-List. To secure conviction

by a jury, it must be shown that the blue quail or butcherbird, for example, which perhaps the defendant admits he has killed, not the scaled partridge or loggerhead shrike of the Check-List, are protected birds. It is evident that the Check-List with its single series of vernacular names cannot be our guide in legal proceedings and this chiefly on account of the great diversity in local nomenclature.

Another school of thought holds that Check-List vernacular names should mould usage. Unless one is thinking in terms of generations, it is safe to say that the same causes that prevent reflection of popular usage also defy attempts to control or standardize it. *Colinus virginianus* still is the quail or the partridge in spite of the Check-List's stand for Bob-white. This is the case with a universally known bird; such names as Pomarine Jaeger and Xantus' Becard have no relation to usage. One may think that Slate-colored Junco and Red-breasted Merganser are gaining usage because he hears them from the lips of those who have learned them from books. But what a minority these are to those who know the species as Snowbird and Fish Duck! In a long course of time Check-List English names for birds might achieve currency through being taught to children in schools, but only then if not stilted or cumbersome. If such gradual influence on usage is the object of the code of English names, selection must be made with the requirements of brevity, aptness, and ease of pronunciation and remembering, always in mind.

If we conclude, as the writer thinks we must, that either conforming to usage to a satisfactory degree or doing anything practical in attempting to mould it, is too large a problem for successful solution through the medium of the English Check-List names, we find ourselves farther than ever from an answer to the query—Just what is the field for this formal code of English names? Is its main use that of affording a duplicate set of designations for every form whether species or subspecies for use in local lists, exchange catalogs and the like? If so, is it not subject to the inevitable criticism of all duplications, that it has only a limited usefulness and represents therefore more or less a waste of effort? What purpose does a conventional set of English names serve in such a conection that is not served by the technical names? If instability of the latter is urged as an objection, relief can be obtained by using only those names cited in a specified edition of the Check-List. However, the superior stability of vernacular over scientific bird names is not given great weight by those who have catalogued the former and are aware of such totals as 53 different cognomens for the Tip-up, 82 for the Hairy-head and 109 for the Stiff-tail*.

Apart from the matter of stability it would surely seem that usage in formal lists of birds for subspecies never distinguished by the public is a rather barren purpose for a set of non-technical Check-List names, certainly one over which no great pains and labor are called for.

On the other hand it is necessary to use English names for *species* of birds in popular manuals and in bulletins intended for distribution to the public. What are the most desirable names for this purpose is subject to discussion: in general it would seem that highly artificial names are not the best.

To sum up, it is obvious that the single series of English names of the

*The follower of the check-list may know these respectively as Spotted Sandpiper, Hooded Merganser and Ruddy Duck, but I have used alternative names in this connection to point the moral.

Check-List cannot reflect an extremely heterogeneous popular usage; it would appear also that definite teaching value of the code of names as at present constituted, as well as effectiveness in shaping usage, remains to be proved. A reference set of vernacular names of *species* of birds is of value in connection with popular handbooks and bulletins; but it is not apparent what valuable use there is for made-to-order names for all of the *subspecies*, that is not fully served by the scientific names.

Washington, D. C., October 9, 1922.

COMMENTS ON TWO RECENT NUMBERS OF BENT'S LIFE HISTORIES OF NORTH AMERICAN BIRDS

By G. WILLETT

ON READING the last two numbers of Mr. Bent's splendid work (U. S. Nat. Mus. Bulls. 113 and 121), several items contained therein seem to the writer to call for a certain amount of enlargement or criticism. Therefore the following notes are submitted as of possible interest to CONDOR readers.

Larus glaucescens. Glaucous-winged Gull. In regard to this species the statement is made on page 70 of Bulletin 113 that no evidence was found to show that it eats the eggs of other species of birds. Previous to the summer of 1920 all information secured by the writer during several years of close observation of the species on its breeding grounds would certainly have led one to believe that it lacked the egg-stealing propensities of its more southern relative, *Larus occidentalis*. The natural food of the Glaucous-winged Gull is small fish—in southeastern Alaska the herring—and it is doubtful whether it resorts to egg stealing when this food is to be readily obtained.

During the summer of 1920, which the writer spent on Forrester Island, the herring, though present in considerable numbers throughout the summer, for some reason seldom rose to the surface of the water where the gulls could obtain them. The puffins and cormorants secured their rations without difficulty, by diving, but the gulls were forced to seek their subsistence elsewhere. In early summer they ate shell-fish, crabs, etc., to a large extent, but later, after the cormorants and murres had laid their eggs, these constituted the most important item on the menu of the gulls. Mr. A. M. Bailey, at that time with the Biological Survey, was with the writer on several occasions when the gulls were seen busily engaged in pilfering their food from the nests of murres and cormorants. The latter, in particular, were so persistently robbed that visits to their colonies in late summer showed a large proportion of their nests to be empty and most of the others to contain but one or two young to the nest.

Larus argentatus argentatus. Herring Gull. **Larus argentatus thayeri.** Thayer Gull. The occurrence of these two forms of the herring gull in southeastern Alaska has, up to the present time, not been well understood. This fact led Mr. Bent to state that breeding records for the herring gull from southeastern Alaska might refer to *thayeri*.

There are apparently but few breeding localities in this region, the only two known to the writer being Forrester Island and Muir Inlet. In the former locality the bird breeds only in small numbers and apparently is entirely absent during some summers. The summer of 1914 several pairs nested on rocks off the northern end of Forrester Island (*Auk*, XXXII, 1915, p. 300), in company with Glaucous-winged Gulls. After considerable difficulty, the writer succeeded in flushing herring gulls from two nests. The species was noted frequently during subsequent summers until 1920. During this season, a collecting permit having been secured, an attempt was made to secure specimens, but, though several immature birds were seen, not a single adult could be found on the island.

Mr. A. M. Bailey, while with the Biological Survey, found about a dozen pairs of herring gulls nesting among Glaucous-winged Gulls in Muir Inlet June 19, 1920. He informs me that specimens secured are referable to *argentatus*.

The writer is familiar with the two forms of herring gull as they occur in this region and has taken numerous specimens of each. At close range the two, in nearly all instances, may be easily differentiated in the air by one familiar with them. The bird that is sparingly found throughout the summer is *argentatus*, readily distinguished from *thayeri* by the large amount of black on its wing tips.

Both forms winter in the vicinity of Craig in considerable numbers, though *argentatus* is the most plentiful. The earliest fall record for *thayeri* is September 24 (1922) and the latest in spring, March 24 (1922). It is probable, however, that they remain considerably later in the spring. In February and March vast numbers of herring come to the vicinity of Craig to spawn. At this time gulls and many other species of birds congregate in thousands to feed on the fish and their spawn. During this period both forms of herring gulls occur commonly.

Larus brachyrhynchus. Short-billed Gull. Although Mr. Bent does not include southeastern Alaska in the winter range of this species, it is an abundant winter resident in the region, at least as far north as Wrangell. Adult birds begin to arrive in the vicinity of Craig about the middle of July, and by the end of the month they are common. They are very plentiful throughout the winter and until late April, and stragglers are occasionally noted through May. Immatures are occasional during the summer months. The species was common at Wrangell during the winter of 1920-21.

Oceanodroma furcata. Fork-tailed Petrel. The earliest nesting date Mr. Bent gives for this petrel is June 7. On Forrester Island eggs were found as early as May 13 and by May 18 were quite common.

Sula dactylatra. Blue-faced Booby. Though, as Mr. Bent indicates, two eggs is the usual number laid by this species, the writer, while on Laysan Island during the winter of 1912-13, noted two nests containing three eggs each; and on Lisianski Island a nest containing four eggs was found.

Phalacrocorax auritus cincinatus. White-crested Cormorant. Among pro-

tected breeding grounds of this cormorant Mr. Bent mentions St. Lazaria and Forrester islands. The writer spent two summers in the vicinity of St. Lazaria Island and six summers on Forrester Island without seeing any indications of its breeding on either of them. The species was not seen at all at St. Lazaria and only once, in spring, at Forrester. There is no portion of the coast line of Forrester Island and outlying islets that was not thoroughly covered and it is certain that this bird did not breed there from 1914 to 1920. Though the writer has searched carefully for breeding colonies of this bird and has questioned many others regarding them, he has been entirely unable to locate any along the southeastern Alaskan coast and doubts their existence in this locality.

The White-crested Cormorant is a rather common winter resident in the vicinity of Craig, adult birds being noted as early as September 11 (1921) and as late as May 17 (1922). Immature birds have been seen as late as June 2 (1921) and may possibly occur throughout the summer. It is the writer's belief that these birds come from lakes in the interior and not from coastal breeding colonies.

Phalacrocorax penicillatus. Brandt Cormorant. The specimen of this cormorant taken by the writer on Forrester Island June 2, 1917, and recorded in Condor, xx, 1918, p. 85, constitutes the only record of the species for the locality and, I believe, from Alaska. This bird was almost certainly a straggler only and it would seem insufficient evidence upon which to include Forrester Island in the breeding range of the species as is done by Mr. Bent.

Craig, Alaska, November 5, 1922.

FROM FIELD AND STUDY

Concerning the Cassiar Junco.—I wrote a personal letter to the editor of THE CONDOR the other day which called forth the decidedly unexpected reply that I had some very good ideas which ought to go on record. The editor's remark was called forth by some comments I had made on Swarth's discovery of the breeding range of *Junco connectens*, at Telegraph Creek, B. C., as set forth in his "Birds and Mammals of the Stikine Region of Northern British Columbia and Southeastern Alaska". I took rather a personal interest in this discovery, as my home, Colorado Springs, Colorado, is the type locality of *Junco connectens*. I was living there when Messrs. Allen and Brewster collected the type specimen, of which, however, I knew nothing until years after, though I met those gentlemen there.

It so happens that much of my field work about Colorado Springs has been done in the autumn and winter months, when we have a goodly assemblage of Juncos with us: *caniceps* (the local breeding form), *mearnsi*, *aikeni*, *shufeldti*, *montanus*, *hyemalis*, and *connectens*. Of course these are not all equally abundant; some are quite rare. I may say here that I had never been quite satisfied in my own mind with the treatment accorded *connectens* by various writers. Some, if my memory serves me right, tried to explain it as a hybrid, an explanation which seems to me in many cases to be a confession of ignorance, an explanation to fall back upon if you don't know the real facts.

In my field work in this region I have yearly seen a certain number of these black-headed Juncos, with no brown on back or pink on sides. They are quite different-looking birds from *hyemalis*, which is much rarer, and they are, of course, easily distinguishable from *shufeldti* or *montanus*, the other two black-headed Juncos about here. Seeing these birds regularly, even though they were relatively rare, rather convinced me that they must belong to a distinct form and not of a hybrid nature, though

I knew well enough that this point would never be established until the breeding range was found. Swarth appears to have found this, and his remarks on the subject show decidedly that *Junco connectens*, the Cassiar Junco, as he has named it, is a valid form, a good subspecies.

This affair shows what uncertainty may be caused by the description of a species or subspecies from a specimen taken on the winter range, perhaps thousands of miles distant from the summer home. In this instance almost forty years went by before the breeding range was discovered and the validity of the form really established. This brings a question to my mind: Where do most of the individuals of *connectens* winter? Can someone tell us? I wonder if any other species or subspecies of our birds have been described from winter specimens, with the summer home remaining as yet unknown.—EDWARD R. WARREN, *Colorado Springs, Colorado, November 6, 1922.*

Note on the Sense of Smell in the Golden Eagle and Certain Other Birds.—The problem of the respective place of the senses of smell and of sight in enabling the Turkey Vulture and other carrion feeders to find food is difficult partly because of the lack of sufficient reliable data. The following testimony to the efficacy of the sense of smell is contained in a report submitted to the Biological Survey by Mr. Stanley G. Jewett, Predatory Animal Inspector, Portland, Oregon. On April 16, 1918, according to Jewett, trapper Elmer Williams (working in Okanogan County, Washington) caught a Golden Eagle in a coyote trap which he had set at the base of a small fir sapling in a grove and baited only with the "decayed fish and beaver castor" scent in use by the government trappers. In such case the trap is carefully concealed and there is no indication to any but the most practiced eye that any disturbance in the surroundings has taken place. A little scent is usually dashed on the twigs or leaves in the immediate vicinity of the trap, and the only impression received is through the sense of smell. Jewett writes that trappers in the Oregon-Washington district often catch such species as the Turkey Vulture, Raven, Western Crow, Golden Eagle, Red-tailed Hawk, Magpie, and even occasionally the Crested and Gray jays (*Cyanocitta* and *Perisoreus*) in traps baited only with scent, and one case is known of the capture of a Horned Owl. —WALTER P. TAYLOR, *U. S. Biological Survey, La Jolla, California, September 14, 1922.*

Additions to the List of Birds from Yellowstone Park.—

Bobolink (*Dolichonyx oryzivorus*). A pair of these birds were seen with a flock of Cassin Purple Finches. Although Bobolinks have been on the ranches all about us for years, this pair, noted May 20, 1922, is the first record inside this Park.

Ruddy Turnstone (*Arenaria interpres morinella*). A single bird seen on August 30, 1922, with four Killdeer for companions.

White-faced Glossy Ibis (*Plegadis guarauna*). A single bird seen on September 17, 1922, feeding on the border of a muddy slough. Both this bird and the Turnstone were passing through on migration.

These three bring the list of birds for the Yellowstone National Park up to 205 species.—M. P. SKINNER, *Yellowstone Park, October 7, 1922.*

A Grebe Under Water.—About 8 A. M. on October 12, when the water was unusually clear, I observed an Eared Grebe diving near our pier. The depth was about ten feet and details were easily visible. The descent was made at an angle of about 45°, changing abruptly to a course parallel to the sand when very close to it. Swimming close to the bottom continued for distances estimated at from fifty to seventy-five feet in the various dives. The course next to the bottom was very irregular, mostly zigzag, but also including some reverse turns.

Irregular movements of the head accompanied these swimming movements at the bottom. The whole combination of movements gave a very distinct impression of searching for something. The natural conclusion was that the bird was searching for sand crabs or sand worms or other bottom-dwelling animals. No count was kept of the number of dives, made in plain view, but there must have been at least five. Ap-

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parently the feet only were used for swimming. Ascent to the surface was almost vertical and the grebe came above the water with a bounce like a cork.

The diving of these birds has interested me very much in the last few years, as a few of them are nearly always seen to be active fairly close to the pier through the winter months, but this was the first time that I had been able to observe complete operations in a series of dives.—W. E. ALLEN, *Scripps Institution for Biological Research of the University of California, La Jolla, California, October 28, 1922.*

The White-throated Sparrow in Los Angeles.—On November 13, 1922, I saw a White-throated Sparrow (*Zonotrichia albicollis*) in the Hollywood section of Los Angeles. The bird was with Gambel Sparrows on a weedy hillside among tall dry mustard, and presented an exceptionally good opportunity for observation by appearing at two different times within twenty feet of me. With my field glass I saw very clearly the distinctive markings: The black and white striped head; the brilliant yellow of the front end of the superciliary; the sharp contrast between pure white of throat and gray of breast; the rich rusty brown and black streaky back; and the horn-colored bill. As I was familiar with this species in its New York State breeding grounds and know the Gambel here, I feel entirely satisfied with my identification. But as the specimen was not collected, I offer this record with all due modesty.—MARY MANN MILLER, *Los Angeles, California, November 15, 1922.*

An Early Account of the California Condor.—In the rare and little known work of Adolphe Boucard, trochilidist, collector, and merchant of hummingbirds, entitled "Travels of a Naturalist" (1894, p. 51), there is a passage which probably sums up the knowledge of this nearly extinct bird, which was current and obtainable about San Francisco in 1851-52, when he was a resident in that city. It reads as follows: . . . "But the rarest of all, the Californian Vulture, *Pseudogryphus californicus*, was seldom seen. It is a very rare bird, peculiar to California. It is the largest of the North American species, rivalling the Condor. It is dark brown, with the head and neck naked. It is very voracious, and when many are together the carcase of a horse or cow is devoured in a very short space of time. The smaller species, *Cathartes aura*, does not dare to approach them. It is not uncommon to see them assemble with the gulls, and greedily devour the carcase of a whale which has been cast ashore, and they will even pursue weak and wounded game".

Boucard had also learned something of the South American Condor, *Sarcoramphus gryphus*, during his visits ashore at Valparaiso on his outbound trip in 1851, for he writes (*loc. cit.*, pp. 21-22) of it as follows: "Among the Chilian birds, the most remarkable species is the *Condor, Sarcoramphus gryphus*, belonging to the family of *Vulturidae*. This giant bird is a native of the Andes, choosing its breeding place between an altitude from 10,000 to 16,000 feet; but they are also seen frequently on the coast, especially when in search of carrion. Flocks are never seen except around a large carcase. Otherwise they are met singly, soaring at great height in vast circles. Its flight is slow and majestic. Its head is constantly in motion as in search of food. To rise from the ground, it must needs run for some distance, then it flaps its wings three or four times, and ascends at a low angle, till it reaches a considerable elevation, when it seems to make a few leisurely strokes, as if to ease its wings, and moving in large curves it glides along without the least apparent vibratory motion. In walking the wings trail on the ground, and it has a very awkward gait. When well gorged with food, it is slow in its movements and stupid, and is easily captured. Although a carrion bird, it also feeds on calves, sheep, dogs, or the like, when it has the chance. It has been said and written that children have been carried away by this bird; but I doubt that any authenticated case has ever been proved.

"They are most commonly seen standing on rocks, around vertical cliffs, where their nests are. It lays two white eggs, three or four inches long, on an inaccessible ledge. It makes no nest proper, but places a few sticks around the eggs. It is very difficult to get at them, and they are still rare in the collections. Incubation occupies about seven weeks, and takes place in the months of April and May. The young at birth are scarcely covered with a dirty white down, and it takes a considerable time

before they can fly, No one has ever been able to state satisfactorily how long they are fed by their parents, but it is probable that it is not much shorter than a year. They are as downy as goslings until they nearly equal in size a full grown bird. During all that time they are very voracious, and the parents are constantly chasing for their support.

"A second species, *Sarcoramphus aequatorialis*, has been described some years ago by Mr. Sharpe; but having actually in my possession one specimen agreeing exactly with the type now in the British Museum, I am of opinion that it is only a young male, aged three or four years, and that it is the usual plumage of that age. It is then brown, or ash colour, all over, meanwhile the fully adult plumage of *Sarcoramphus gryphus* is black, with secondaries exteriorly edged with white, and a downy white ruff on the upper part and sides of neck. This last is naked and of a good size; the skin lies in folds in the male. The caruncles on the head of the adult males are well developed, and have somewhat the shape of a crown. A full grown bird measures from twelve to thirteen feet. The olfactory organs are well developed, and it has been said that it has an extraordinary power of scent; but I am more inclined to attribute the faculty of detecting their proper food, at considerable distances, to their sight, which must be prodigious. Life is scarcely extinct when flocks of these birds, invisible to naked eyes, pounce upon their prey".

There is little or no direct evidence in either account that the author spoke from first-hand experience or observation of either of these birds. The accounts are of interest only as collateral evidence gathered by a widely experienced collector and written up from his diary forty-three years after his original visits. He was an acquaintance of Lorquin and of his grandson, Leon Laglaize, and may have gained some of his knowledge from these widely experienced collectors.—CHARLES A. KOFOID, *Berkeley, California, October 26, 1922.*

The Status of the Rocky Mountain Downy Woodpecker in California.—I agree with Dr. Walter K. Fisher (Condor, IV, 1902, pp. 69-70) that the name *leucurus—Picus leucurus* of Hartlaub (Naumannia, II, ii, 1852, p. 55)—ought to be used for the Rocky Mountain Downy Woodpecker. Although excessively brief, the description accompanying it is no worse than that of any one of a dozen other birds which nevertheless bears the name given it on meager basis. I have looked up all the literature cited by Fisher, and am convinced that he made a perfectly good case, even though his proposal in this regard was promptly turned down by the A. O. U. Committee (Auk, xx, 1903, p. 360).

Anyway, the name currently used for the Rocky Mountain Downy ("Batchelder") Woodpecker, *homorus*, is of rather doubtful applicability. *D[ryobates]. homorus* Cabanis and Heine (Mus. Heineanum, IV, ii, 1863 [1864], p. 65, footnote) was described sketchily from simply "Californien", and no type was indicated. I wrote to Dr. Erwin Stresemann of the Zoological Museum in Berlin asking him if the type of *homorus* might not be in the collection under his charge, and, if so, as to what information there might be had concerning it. Dr. Stresemann took considerable pains in the matter; at first he thought he had found the type. but was able later to find evidence ruling out the specimen in question. He is now inclined to think that Dr. Cabanis had no actual specimen in hand, but based his diagnosis on a statement or remark made by some one else, in manuscript or in previous literature. In other words, there may have been no type. Moreover, that a specimen of true *leucurus* had been obtained within the present boundaries of California previous to 1864 seems to me very unlikely.

Somebody years ago expressed the belief that "Downy" Woodpeckers in the Pacific states are more or less migratory. Perhaps this belief arose from the fact that occasional specimens from places in western and southern California had been identified as belonging to races breeding in areas to the northward or eastward. However, all the facts now available lead to the belief that our Pacific "downy" woodpeckers are quite sedentary, being subject only to local wanderings of individuals, about to the extent that most resident birds are.

Thus, with regard to the examples of "*gairdneri*" and of "*homorus*" (or "*leucurus*"), and even of "*pubescens*", which have been recorded far outside of the breeding metropolis in each case, I strongly suspect that what was really concerned in each instance, as far as relates to California, was an individual variant of *turati*. For exam-

ple, W. K. Fisher (loc. cit., p. 70) recorded specimens that he took to be *leucurus* from Ft. Tejon, Kernville, and Quincy, but at the same time remarked on their small size. Only the last named locality is likely to produce individuals even approaching true *leucurus* in relationship.

In the considerable series of *turati* in the Museum of Vertebrate Zoology, even when specimens are considered only from the metropolis of the race, wide variation is observable in all the features used in distinguishing the subspecies of *pubescens*: whiteness versus smokiness of varying degree on the under surface and head, amount of spotting on the remiges and their coverts, barring on the outer rectrices, and measurements of wing, bill, etc. It seems not out of place for me to repeat what I have urged elsewhere; namely, that, on the basis of superficial resemblance alone and irrespective of the probabilities of immediate blood relationship, it is a grievous error to diagnose an extreme of individual variation in one subspecies as belonging to another subspecies.

At the present writing, the only part of California whence good specimens of *Dryobates pubescens leucurus* have been collected is the Modoc region of the northeastern corner of the state, where so many other Rocky Mountain and Great Basin races of birds occur. The undersigned would be glad of the chance of examining examples of supposed *leucurus* from anywhere else in California.—J. GRINNELL, *Museum of Vertebrate Zoology, University of California, Berkeley, August 3, 1922.*

The Tree Swallow Added to the Pribilof List.—The list of avian visitors to the Pribilof Islands is slowly growing and bids fair, in course of time, to include nearly every species of bird that may be found near the shores of either continent adjacent to the Bering Sea.

The latest wanderer to be recorded is a male Tree Swallow (*Iridoprocne bicolor*) which was taken by John Hanson, a native who has been quite interested in observing strange birds on these islands. This specimen was secured by Hanson at Northeast Point, St. Paul Island, Alaska, on May 25, 1922. It was shot with a .22 rifle, much to the detriment of its appearance. It is now in the collection of the Academy.

This species is found on the mainland of Alaska, but has never been recorded from the Pribilofs.—JOSEPH MAILLIARD, *California Academy of Sciences, San Francisco, California, October 27, 1922.*

Dwarf Cowbird Nesting in Alameda County, California.—While collecting near Irvington, Alameda County, California, on May 23, 1922, I found a nest of the Golden Pileolated Warbler containing one egg of the warbler and one egg of what I first thought to be a Santa Cruz Song Sparrow, but which later proved to be the egg of the Dwarf Cowbird (*Molothrus ater obscurus*). I collected the egg of the Cowbird and left the egg of the Pileolated Warbler so the latter could complete her set.

About twenty yards from the nest of the Pileolated Warbler (on this same date) I found a nest of the Santa Cruz Song Sparrow containing three eggs of the Song Sparrow and one egg of the Dwarf Cowbird. I continued my search and my next find was a nest of the Willow Goldfinch containing three eggs of this bird and one egg of the Dwarf Cowbird.

I returned to this same location on May 26, and visited the nest of the Pileolated Warbler from which I had collected the one egg of the Cowbird and found that the Pileolated Warbler had laid one more egg and was incubating, so I collected the set. I continued my search and about thirty yards distant I found another nest of the Pileolated Warbler containing one egg of the Cowbird only.

I made four more trips to this same location and collected the following sets: June 8. Golden Pileolated Warbler nest containing two eggs of the Warbler and one of the Cowbird; June 8, Santa Cruz Song Sparrow nest containing one egg of the Song Sparrow and one egg of the Cowbird; June 17, Golden Pileolated Warbler nest containing one egg of the Warbler and one egg of the Cowbird; June 17, Santa Cruz Song Sparrow nest containing one egg of the Song Sparrow and one egg of the Cowbird; June 23, Golden Pileolated Warbler nest containing one egg of the Warbler and one of the Cowbird; June 30, Santa Cruz Song Sparrow nest containing two eggs of the Song Sparrow and one of the Cowbird.

The measurements of the Cowbird eggs taken (with the exception of the one collected on May 23 from the Santa Cruz Song Sparrow nest, which was so far advanced in incubation that I could not save it), nine in number, are as follows: 17.6×14.8, 17.9×15.0, 18.0×15.1, 19.3×14.4, 18.8×15.1, 18.9×15.3, 18.5×15.4, 18.7×15.6, 19.4×15.2. It will be observed that the smallest of these eggs is decidedly smaller than the smallest egg of the Dwarf Cowbird measured by Bendire (Life Histories, II, 1895, p. 443) out of his series of 37 specimens. Three of my sets, Willow Goldfinch, Golden Pileolated Warbler, and Santa Cruz Song Sparrow, have been presented to the California Museum of Vertebrate Zoology (now nos. 1862, 1868 and 1869 there).—H. V. LA JEUNESSE, *Alameda, California, October 26, 1922.*

Cactus Wrens' Nests.—In regard to the unanswered question raised in Mrs. Bailey's article in the last CONDOR, as to the summer and winter uses of the nests of the Cactus Wren, I might say that as far as my observations have extended in the San Gabriel Wash, new nests are always built for the rearing of the young, this work starting in March. These nests are used through the winter, while those previously built in September and October are taken possession of by the young birds for the balance of the summer. Conditions are evidently quite different from those described as prevailing in southern Arizona, for I have seldom seen any attempt to repair a nest which has gone through the winter rains, the rainfall here amounting to perhaps 18 or 20 inches. I noticed one case, however, where the entrance had fallen in and a new opening had been made on another side of the nest. Ordinarily new nests in new locations are built shortly before the beginning of the rainy season.—ROBERT S. WOODS, *Los Angeles, California, October 11, 1922.*

An Early Fall Record of the Hepburn Rosy Finch.—On October 30, 1922, between twenty-five and thirty Hepburn Rosy Finches (*Leucosticte tephrocotis littoralis*) were seen in a flock about the buildings and corrals at Midway Stage Station, between Imnaha and Enterprise, Oregon. The actions of this flock reminded one of English Sparrows, feeding about the yard and flying to the roofs and ridgepoles of the outbuildings as they did. While this finch is locally common in this part of the state during midwinter, I have no previous knowledge of its occurrence on the plains so early in the fall.—STANLEY G. JEWETT, *Portland, Oregon, November 7, 1922.*

Feeding Habits of the Rocky Mountain Hairy Woodpecker.—On July 22, 1922, I found a female Rocky Mountain Hairy Woodpecker (*Dryobates villosus monticola*) working on the trunk of a lodgepole pine in the Canadian life-zone at an altitude of 7000 feet above sea level. She worked down, tapping here and there as she went. Whenever a tap revealed a borer, she rapidly scaled off the bark and always secured from one to six larvae of the bark beetle. Evidently the tap told her whether it was worth while to search farther, for she made no mistakes and performed no useless labor while I watched her. Then she worked up the trunk again and flew off. After her departure the bark on the tree showed her tap marks every quarter to half inch of its surface. As the borer galleries were of large size, it is likely that the sound or resistance over an occupied gallery would be different.—M. P. SKINNER, *Yellowstone Park, Wyoming, October 19, 1922.*

The Hepburn Rosy Finch in the Olympic Mountains, Washington.—The Hepburn Rosy Finch (*Leucosticte tephrocotis littoralis*) is a common bird of the rocky Alpine Arctic ridges of the Cascade Mountains in summer, and, while no authentic nests with eggs or young have, as far as I know, been found within the state, the Rosy Finch undoubtedly breeds there, immature birds having been taken at a number of points. In the Olympic Mountains, however, the Rosy Finch is far less common, and, as E. B. Webster, naturalist and mountaineer, of Port Angeles, writes (The Friendly Mountain, ed. 2, 1921, p. 107), one may consider the day well spent when he has had the opportunity of closely observing even a single bird. Webster reports seeing the Hepburn Finch occasionally on Mount Angeles, always on the crest of the ridge.

Although considerable work was done in the higher portions of the Olympic Mountains by the Biolcgical Survey party of 1921, Leucostictes were noted on but three occasions. On August 3, 1921, we saw perhaps half a dozen birds on Dodwell-Rixon Pass, between the Snowfinger Glacier at the head of the Elwha River and the headwaters of the Queets River; on August 5 a flock of nine individuals was observed on the ridge between Mounts Noyes and Seattle (altitude about 5,500 feet); and on the same day I collected three immature birds on a rocky ledge above Elwha Basin at an altitude of some 5,000 feet. Two young Rosy Finches were on a steep side-hill near waterfalls and glaciers, and quite obviously belonged to a single family which had apparently been reared in the immediate vicinity.—WALTER P. TAYLOR, *U. S. Biological Survey, La Jolla, California, September 14, 1922.*

RECORD OF BIRDS BANDED

Bands:	2889-2890	12345	17168-17175	24836-24839	32887	56422-56425
	2893-2894	12369	18761-18768	24840-24848	32890	56427-56429
	9009-9020	12370-12371	18770	24850-24854	32892	56430-56432
	9731-9732	12375	21551-21555	24856-24859	42691-42693	56434-56438
	10301-10302	12377-12382	23656	24860-24865	44861	

Joseph Kittredge, Jr., at Missoula, Mont., May 26 to July 11, 1915.

Actitis macularia, (2) 18761,-62.
Dendroica a. aestiva, (1) 9017.
Dumetella carolinensis, (2) 18763,-64.
Pica p. hudsonia, (3) 21551-21553.
Pipilo m. montanus, (1) 18770.
Planesticus m. propinquus, (6) 2889,-90, -93,-94, 21554,-55.
Sialia currucoides, (4) 17172-17175.
Spizella p. arizonae, (3) 9009,-10, 17170.
Troglodytes a. parkmani, (9) 9011-9016, 9018-9020.

June 24 to July 14, 1917.

Actitis macularia, (3) 17168,-69,-71.
Dumetella carolinesis, (4) 18765-18768.
Planesticus m. propinquus, (3) 42691-42693.
Spizella p. arizonae, (1) 44861.

J. E. Law, at Altadena, Calif., June 1, 1922 to October 30, 1922.

Astragalinus p. hesperophilus, (8) 12371-12375, 24837-24839.
Catherpes m. punctulatus, (6) 24843-24847,-56.
Chamaea f. henshawi, (6) 24840-24842, -53,-54,-57.
Lanius l. gambeli, (1) 12380.
Lophortyx c. vallicola, (4) 9731,-32, 10301,-02.
Pipilo c. senicula, (16) 32887,-90,-92, 56422-56425, 56427-56432,-34,-36,-38.
Pipilo m. megalonyx, (1) 56435.
Polioptila c. obscura, (3) 12345,-69,-70.
Thryomanes b. charienturus, (1) 24836.
Toxostoma r. redivivum, (1) 23656.
Vireo h. huttoni, (2) 24850,-51.
Zonotrichia coronata, (5) 12379,-81,-82, 24859, 56437.
Zonotrichia leucophrys (subsp.), (11) 12377,-78, 24848,-52,-58, 24860-24865.

EDITORIAL NOTES AND NEWS

A petition lately circulated and now filed with the President of the American Ornithologists' Union consists of a remonstrance against the current tendency in some quarters toward the subdivision of avian genera to a point where but one species remains in a genus. A real danger threatens, in that by such minute divisions of the genus the usefulness of nomenclature will be greatly discounted. Let us remember that the function of classification is two-fold, to express the results of evolution and to provide a useable set of names. A great many generic changes, such as pervert these uses, have been proposed and are now awaiting action by the A. O. U. Committee on Nomenclature. It is urged that this body be judiciously conservative in the matter. The petition in question, the objects of which we heartily endorse, was launched by Mr. P. A. Taverner, and it has been signed by a large majority of the working ornithologists of the United States and Canada.

Mr. P. A. Taverner of the Victoria Memorial Museum, Ottawa, is at work on a book dealing with the birds of western Canada. This is being planned along similar lines to the same author's "Birds of Eastern Canada", which latter volume has met with a wide demand. The new work will be plentifully illustrated in color from drawings by Allan Brooks.

Major Allan Brooks, whose home is in Okanagan Landing, British Columbia, has come to California for a protracted stay. His headquarters are at the Museum of Vertebrate Zoology, Berkeley, whence he plans to fare forth now and then for periods of collecting and studying birds in different parts of the state. Mr. Brooks has several commissions to execute in the way of illustrating forthcoming works on birds and mammals, both in the East and in California.

The editors of the Cooper Club publications are accustomed to employ in THE CONDOR and in the Avifauna series only the scientific names which have already been adopted by the A. O. U. Committee on Nomenclature, save as explicitly requested by an author to do otherwise. Even then, we prefer not to depart from this standard authority unless the author *gives his reasons* for taking such exception as he may to the A. O. U. rulings.

We recently heard Dr. E. W. Nelson say that, in 1921, about 1200 federal licenses were issued through the Biological Survey to kill birds in the United States for scientific purposes. Four hundred of the holders collected no birds at all; the remaining 800 license-holders collected 15,000 specimens, or less than 20 birds each. It is estimated that during the same period 3,000,000 game birds were killed by sportsmen. Thus one bird was killed to become a permanent, scientific specimen for every 200 birds that were killed for the ephemeral thrill of sport or for the nearly as fleeting purpose of gastronomic pleasure! And yet we have the spectacle of officials of many of the state game commissions solemnly withholding collecting permits, save in rare cases, on the grounds that bird-life must be conserved!

A popular natural history book of more than average merit is the one issued by Houghton Mifflin Company toward the end of 1922 and entitled "Denizens of the Desert". Its author is Mr. Edmund C. Jaeger, of Riverside, California, who shows himself to have the ability to perceive, and record in pleasing language, actual truths in nature. Chapters in the book deal at more or less length with a dozen or more of the common birds of the Colorado Desert, including Canyon Wren, Rock Wren, Leconte Thrasher, Roadrunner, Phainopepla, and Verdin. It is illustrated, the text being supplemented by some attractive pictures, from drawings by Carl Eytel, as well as by photographs. Our copy cost us three dollars at a local book shop.

The *Wilson Bulletin* for December, 1922, contains an article by Ira N. Gabrielson on the "Life Histories of Various Species of Birds" which well illustrates the point that there is no one, anywhere, who is lacking in plenty of opportunity to contribute valuably to avian natural history. The species dealt with by Mr. Gabrielson are all very common ones in the Mississipi Valley, but he brings forward a considerable mass of accurate observational data, some of it, to the best of our knowledge, new, and all of it well deserving publication because of its corroborative worth. Here in the West we often find that scarcely anything of definite value has been published about the behavior of even an abundant species. We cite the *Wilson Bulletin* article as a pattern of what can and ought to be accomplished along this line much more frequently than is the case, in the western states.

PUBLICATIONS REVIEWED

LIFE HISTORIES OF NORTH AMERICAN PETRELS AND PELICANS AND THEIR ALLIES. ORDER TUBINARES AND ORDER STEGANOPODES. By ARTHUR CLEVELAND BENT. United States National Museum, Bulletin 121, xii+343 pp., 69 pls.; 1922.

It is gratifying to see the several volumes of Mr. Bent's work appearing in as quick succession as the first three parts have come out, giving hopeful assurance that this laborious undertaking will be successfully pursued to the finish. Bibliographically, each publication is a separate book, being issued as differently numbered "Bulletins" of the National Museum; as a matter of fact, of course, they form consecutive volumes under the same general plan, and the last one out, here under consideration, very properly does not differ materially from its predecessors in its treatment of the subject matter (see Condor, XXII, 1920, p. 45).

It is a matter of congratulation to North American bird students that they should have accessible the information here made available, with carefully written first-hand accounts, just as carefully compiled quotations from published sources of information, and an abundance of instructive illustrations. Mention should be made also of the several chapters written by Dr. Charles Wendell Townsend, treating of certain North Atlantic species, well known to him, and, by his attractive presentations, brought vividly before the reader. On the whole, the reviewer closed the volume last received, after a rather lengthy preliminary examination, with a feeling of enthusiastic admiration, both for the energy involved in accumulating the great amount of data here assembled, and for the ability displayed in bringing this mass of information into attractive and usable form. There may be, doubtless there are, minor errors committed here and there, but the reviewer can claim little or no acquaintance with most of the birds described, and he was consequently free to read and enjoy, with no temptation to pick flaws in matters of detail.

The impression he received was favorable, so extremely favorable in general as to leave one point of disagreement (a feature in which this volume differs from its two predecessors) looming up in almost disproportionate prominence. In short, the author has handled his life history material so well, so very well indeed, that one deplores the fact that he did not stick to life histories and leave matters of nomenclature alone. In the "Introduction", explaining departures from the nomenclature of the American Ornithologists' Union *Check-list*, the statement is made that "now that a new check list is in preparation, it seems best to adopt the names that will probably appear in the new check list, so far as they are now understood by the author."

To the reviewer this seems a most unfortunate course for the author to have taken. Many bird species are here treated under names that are absolutely unfamiliar to most of his readers. And what reasons are there for him to adopt such changes? What assurance is there that these changes will appear in the new check-list? In most cases they arise from excessive splitting of genera, carried to extreme lengths in the last few years. There are many ornithologists who deprecate such splitting, with the frequently resultant monotypic genera; who devoutly hope that most of the changes endorsed by Mr. Bent will *not* appear in the new check list; and who are anxious to do everything possible to prevent such appearances. In the meantime, before the new check list appears, surely it is better to stick to the names in the old one, especially so in the case of a publication like the one here reviewed.—H. S. SWARTH.

MINUTES OF COOPER CLUB MEETINGS

NORTHERN DIVISION

OCTOBER.—The regular meeting of the Northern Division of the Cooper Ornithological Club was held at the usual time and place on October 26, 1922. In the absence of both president and vice-president, Mr. A. S. Kibbe was asked to preside. Members present were Mesdames Allen, Grinnell, Kibbe, Mead, Reygadas, and Schlesinger; Misses Burk, Flinn, and Gunn; Messrs. Bunker, Camp, Carriger, Dixon, Grinnell, W. Grinnell, Kibbe, Kofoid, Labarthe, Torrey; visitors, Mrs. Evermann, Mrs. Gunn, Mrs. Field, and Miss Catten. September minutes were read and approved and August and September minutes of the Southern Division were read. Miss Susan Beaman, Cora L. Williams Institute, Berkeley, was presented for membership by Mrs. J. T. Allen. Mr. G. Frean

Morcom was elected to honorary membership.

The program consisted of a talk by Mrs. A. S. Kibbe on her experiences in raising an Anna Hummingbird, and a paper by Prof. C. A. Kofoid entitled "An Early French Student of California Hummingbirds."

Adjourned.—AMELIA S. ALLEN, *Secretary.*

NOVEMBER.—The regular monthly meeting of the Northern Division was held in Room 9, California Museum of Vertebrate Zoology, November 23, 1922, at 8 P. M. President Swarth was in the chair with the following in attendance: Mesdames Bogle, Ferguson, Mead, Saunders, Schlesinger; the Misses Burk, Fisher, Flinn, Wythe; Messrs. Bryant, Camp, Carriger, Cooper, Evermann, W. F. Grinnell, J. Grinnell, G. D. Hanna, LaJuenesse, Lastreto, McLeod, R. C. Miller, T. I. Storer, R. S. Wheeler, White. Several visitors were present. Minutes of October meeting of Northern Division were read and approved, followed by reading of minutes of Southern Division for October. Mrs. Mary E. Delport, 1601 Oxford St., Berkeley, was proposed for membership by Miss Genevieve Burk.

Dr. Grinnell discussed the Federal Public Shooting Grounds Bill, and then moved that the Division, through the Secretary, send written approval of the bill to the California representatives in Congress. The motion was seconded by Dr. Evermann and carried. Subsequently, on motion of Mr. Lastreto, seconded by Dr. Grinnell, and by a vote of 8 to 6, the previous motion was reconsidered. After considerable discussion a motion by Mr. Lastreto, seconded by Mr. Cooper, instructed the President to appoint a committee of three to consider this bill and report its decision at the next meeting. An amendment proposed by Dr. Grinnell, to the effect that the committee should have power to transmit its findings, if favorable, directly, was carried. The President appointed the following for the Committee: Dr. B. W. Evermann, chairman, Mr. C. B. Lastreto, Dr. H. C. Bryant.

The Division then listened to two interesting papers, as follows: G. Dallas Hanna, "Birds of Guadalupe Island"; Barton W. Evermann, "Birds observed from San Francisco to Honolulu and return." Adjourned.—TRACY I. STORER, *Secretary pro tem.*

SOUTHERN DIVISION

OCTOBER.—Regular meeting of the Southern Division, Cooper Ornithological Club, was held at 2:00 P. M., October 29, at the home of Mr. F. C. Millard, in Alhambra. Fifty members and friends attended and spent a pleasant hour inspecting and studying the hundred or more species of birds, mostly exotics, confined in Mr. Millard's aviary.

Meeting was then called to order by President Rich. Minutes of previous meeting were read and approved, and those of the Northern Division were read by title only. Names presented for membership were: Ethel M. Archer, R. D. 4, Anaheim, by Miss Atsatt; Earl Clifford Borton, 1007 Morton St., Alameda, by H. C. Bryant; Albert E. Thompson, Blythe, Calif., by W. M. Pierce; H. N. Henderson, 216 E. Philadelphia St., Whittier; and Alfred O. Gross, Bowdoin College, Brunswick, Me., by W. Lee Chambers. The Northern Division sent the names of Edna M. Fisher, Kenneth McLeod, Jr., and C. R. Thomas, all of Berkeley; and Mrs. Nina M. Slack, Oakland, Calif.

The host spoke briefly on some of his experiences, mentioning types of birds that thrive in captivity, and obstacles that must be overcome in the maintenance of a successful aviary. His talk was much appreciated by all.

A letter from the Director of the Southwest Museum, inviting the Club to hold all or a part of its meetings at that place, was presented by the Secretary. On motion of Mr. Law, seconded by Mr. Appleton, action was deferred to the November meeting.

A communication from the Commission of Canadian National Parks, directed to the Los Angeles Audubon Society, relative to loaning slides and films of Canadian wild life, and referred to the Club by Mrs. G. H. Schneider, was read. As the Club is not now prepared to use these to best advantage, on motion of Dr. Miller, the communication was ordered filed.

The matter of presenting to the City Librarian the needs of bird students in connection with the new library building was brought up by Miss Miller, who moved that the Secretary be instructed to write the Librarian, in the name of the Club, urging proper recognition of this necessity. Motion seconded by Dr. Warmer. Carried.

Business completed, a generous supply of fruit enlivened the informal end of the session. Adjourned.—L. E. WYMAN, *Secretary.*

OPEN LETTER TO CONDOR CONTRIBUTORS

The building of a journal begins with the mechanical preparation of the copy by the author. This work may be so managed that it will later contribute toward accuracy of workmanship, dispatch in handling, and economy of production. Coöperation of author with editor, publisher and printer results in benefit to all four. The author secures creditable presentation of his ideas, the editor is relieved of needless drudgery, the publisher obtains the highest quality and best service for the amount expended, and the printer profits by the economy of time, effort and materials.

As regards the author, an important feature of his coöperation is to see that his *manuscript is as nearly as possible ready for delivery to the printer.*

The Condor is published by the Cooper Ornithological Club, and practically all the Club's money goes into the magazine. Articles published in *The Condor* are written by Club members. Poor copy for the printer results in poor proof, requiring repeated resetting of type and rereading of proof. *Resetting type costs money.* Money saved by good management in this regard may be expended toward a larger and better magazine. As an aid toward such economy the following rules and recommendations have been drawn up.

Rules

1. Manuscripts, if not typewritten, should be in *perfectly clear handwriting.*
2. Use one side of the paper only. *No circumstances allow of an exception to this rule.*
3. In typewritten manuscript *always leave double space* between the lines. In handwritten copy leave as much space as is occupied by the written line itself.
4. Liberal margins should be left at the top and sides of the sheets; at least 1¼ inches at the left side.
5. *The author* should *himself* prepare copy for titles, and, where needed, for sub-titles.
6. *The author* should *himself* prepare full and illuminating captions for illustrations.

Recommendations

It may be assumed that the author has used due care and thought in the arrangement of his material, in logical sequence of presentation, and in conciseness and clearness of statement. But before the manuscript is submitted it will be well to give it thorough revision as a whole. The excision of superfluous words and phrases, and of immaterial detail generally, will not only make for clearness and precision, but will also reduce the cost of publication appreciably. *Conciseness is particularly to be recommended in papers on technical subjects.*

Observe *Condor* style and usage, familiarize yourself with its leading features and prepare your paper accordingly. "General articles" and the brief "Field and Study" items are printed in different styles.

There are "manuals" published that give detailed instruction for the preparation of manuscript. Those who care to provide themselves with such aids will find them useful. Two such standard publications are the *Manual of Style*, issued by the University of Chicago Press, and *Suggestions on the Preparation of Manuscript*, by the University of California Press.

Respectfully submitted,

The Editors of The Condor.

For Sale, Exchange and Want Column.— Any Cooper Club member is entitled to one advertising notice in each issue free. Notices of over ten lines will be charged for at the rate of 15 cents per line. For this department, address W. LEE CHAMBERS, *Altadena, Los Los Angeles County, California.*

WANTED—Osprey, vol. IV, no. 10.—A. WETMORE, *Biological Survey, Washington, D. C.*

COSTA RICA BIRD SKINS—There is a growing interest being shown by institutions and individuals in the extralimital species of the genera enumerated in the A. O. U. *Check-List.* I can furnish many of the Costa Rican forms.—AUSTIN SMITH, *Apartado 413, San Jose, Costa Rica.*

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FOR SALE—Complete set of Auk, vol. 1 (1884) to vol. 31 (1914), inclusive, for $150; freight prepaid. Also a 38 auxiliary barrel for a 20 gauge gun, prepaid, $5.—FRED DILLE, *Valentine, Nebraska.*

FOR SALE—U. S. National Museum Bulletin no. 50, in parts as issued, $15.00, delivered. Report of the Harriman Alaska Expedition, ten volumes (lacking vol. 2, nos. 6 and 7), $20.00.—THE FREE LIBRARY, *Fayetteville, New York.*

WANTED—Advertisers in The Condor to send in clean copy, type-written if possible. Doing so, to *leave double spaces between lines.*—EDITORS.

COOPER CLUB PUBLICATIONS

To be had from W. LEE CHAMBERS, Altadena, Los Angeles County, California

PACIFIC COAST AVIFAUNA

No. 10. A Distributional List of the Birds of Arizona, by Harry S. Swarth, 1914, 133 pp. and map. Price $1.50 post paid.

The only published synopsis of the birds of Arizona, based upon a compilation of the previous literature of the subject, together with much original matter. It lists 362 species (24 additional in the hypothetical list), giving the manner of occurrence of each one. In addition to the main body of the publication there are supplementary chapters giving an analysis of the avifauna of the state, in which the bird species are catalogued according to seasonal and zonal occurrence, a map of the life zones of Arizona, an exhaustive bibliography, and an index.

No. 11. A Distributional List of the Birds of California, by J. Grinnell, 1915, 217 pp., 3 pls. (maps). Price $3.00 post paid.

An accurate and invaluable work of reference regarding the birds of this state. The main list includes 541 species, giving for each one a list of the synonyms under which it has been previously recorded, and an exact statement of its status within the state. There is a supplementary "Hypothetical List", and chapters dealing with theories and principles of the distribution of animal life in California, maps illustrating some of the facts of distribution, and an index including currently accepted names and all synonyms.